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Y2000 Alcohol and Drug Survey: An Examination of University of North Dakota Students

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Y2000 Alcohol and Drug Survey: An Examination of University of North Dakota Students

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This thesis, submitted by Michael Seredycz in partial fulfillment of the requirements for the Degree of Masters of Arts from the University of North Dakota, has been read by the Faculty Advisory Committee under whom the work has been done and is hereby approved.

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This thesis meets the standards for the appearance, conforms to the style and the format requirements of the Graduate School of the University of North Dakota, and is hereby approved.

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Michael Seredycz

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ABSTRACT

National and regional substance use studies suggest that college students are frequent users of alcohol, tobacco and drugs. This study examines substance use at UND, utilizing both qualitative and quantitative methods, examining the predictive power of Hirschi's social control theory in response to collegiate substance use. This research will provide a profile of student activities and beliefs associated with use or non-use, as well as the prevalence of use of alcohol, tobacco and drugs.

Three focus groups were used to increase reliability and validity of the sample before a quantitative self-administered survey was administered to a convenient sample of students. Results indicate that Hirschi's theory as operationalized in this study; attachment to parents, commitment to education, involvement in activities and belief in society's rules were found to be good predictors of collegiate substance use. As a student's bond to society increases (or bonds to conventional activities increases), they are less likely to use drugs, either legal or illegal.

CHAPTER 1

INTRODUCTION

Newspapers, television, and the Internet suggest that we face a problem in the new millennium. There is concern that alcohol, tobacco and illicit drug use is more prevalent among collegiate students than ever before. A great deal of information is gathered on an annual basis however, there are very few studies that have dealt with the predictors and factors that contribute to the frequency of collegiate substance use.

What is a drug? From a pharmaceutical viewpoint, a drug is any substance, other than food, that chemically alters the structure or function of a living organism (Kornblum and Julian, 1992). This includes any substance from antiperspirant deodorant to vitamins and hormones. Today, drugs are used to ease pain and to treat or prevent disease. Others use these drugs purely for recreational purposes. The U.S. government has (morally) decided that some drugs should be classified as illegal. Many of these drugs have been proven dangerous and because these drugs are so similar it is difficult to legalize one and not another. Two well-known legal drugs are alcohol and tobacco. State and Federal governments acknowledge that both alcohol and tobacco are legal for purchase and consumption, providing people meet the minimum age requirements. However, there are social and legal consequences to their use. These consequences vary in degree and also vary in comparison to the consequences of illicit drug use in which society attributes as socially unacceptable

(unless attained by prescription by a licensed physician). Although discouraging use both legally and socially, illicit substance use is still prevalent today.

Alcohol Use

Alcohol use has been prevalent in our culture throughout its history. This would be one reason why it has been legalized for public use for those persons over the age of 21. The pioneers of this country drank wine and beer rather than water, a time when water was thought to have many contaminants. Beer and wine were considered safer. Although this justification is no longer present, the public still continues to use alcohol for recreational use, and for some self-medication (Kornblum and Julian, 1992).

The National Institute on Drug Abuse (NIDA) suggests that there are three different levels of alcohol use (Engs, 1977). Current use is when a person has had at least one drink in the past month (which would include binge drinking and heavy use). Binge drinking (which includes heavy use) is when a person consumes five or more drinks on the same occasion at least once in the past month. Heavy use is when a man (or woman) consumes five (four) or more drinks (on the same occasion) at least once a week (Engs, 1977). Due to the variability of drinking behavior it is difficult to recognize the difference between a binge drinker and a heavy user until that person can explain his or her own alcohol use.

In 1998, NIDA suggested that approximately 113 million people (aged 12 and over) were current alcohol users. This accounts for approximately 52% of the total population of the United States. Current rates of alcohol use for people between the ages of 21 and 44 are above 60% and have remained constant for some time. Nearly

33 million people (15.7%) engage in binge drinking, and about 12.4 million Americans (5.9%) are heavy drinkers.

According to the National Household Survey on Drug Abuse (NHSDA) (1998) conducted by Substance Abuse and Mental Health Services Administration (SAMHSA), men are much more likely than women to be binge drinkers (23.2 percent and 8.6 percent, respectively) and also heavy drinkers (9.7 and 2.4 percent, respectively).

To get a better idea of how widespread alcohol use is, researchers have also found it important to survey the youth of the United States. Each year, the University of Michigan releases a report outlining the substance use of high school students. Recent trends suggest that more high school students are "saying no" to alcohol. In 1998, Johnston, O'Malley and Bachman found that 81.4% of twelfth graders had used alcohol in their lifetime compared with the 90.4% in the class of 1975. However, there is still a significant problem if 62.4% of students reported they had "been drunk" before and 52% reported they had at least one drink in the last 30 days.

Given the prevalence of alcohol use among high school students, the university environment suggests an even greater susceptibility. The newly found independence of many of these students, coupled with a social environment supporting social drinking (peer pressure), and the simple availability of alcohol through the substantial legal drinking age population, all contribute to a likely increase in their tendencies to drink socially.

One national study of college students suggests that 72% of all students consume alcohol at least once a year. The University of Indiana surveyed 12,000

university students across all states. The survey found that the mean consumption of all students sampled was 9.6 drinks each month. Of the drinkers, 28.4% were heavy drinkers and 71.6% were light to moderate drinkers. Among only students who reported drinking, the consumption average was 10.9 drinks per week (Engs, Hanson, and Diebold, 1994) as seen below.

Table #1 - College Students Drinking Behavior by Gender, Race and Age

	ALL STUDENTS				DRINKERS ONLY		
	N	Abstain	Moderate	Heavy	N	Moderate	Heavy
Gender							
Males	4641	21.8	44.5	33.7 *	3630	56.9	43.1 *
Females	7440	30.9	56.7	12.4	5071	82.1	17.9
Race							
White	9862	23.5	53.3	23.2 *	7544	69.6	30.4 *
Non-white	1921	45.6	45.8	8.6	1045	84.1	15.9
Age							
< 21	6931	30.2	47.7	22.1 *	4841	68.4	31.6 *
> 21	5068	23.7	57.7	18.6	3868	75.6	24.4

* p<.001

source: Engs, Ruth C., Hanson, David J., Diebold, Beth A., *The Drinking Patterns and Problems of a National Sample of College Students*. Potsdam, NY: Indiana University and State of New York University. 1994.

Among the regions surveyed by Engs, Hanson and Diebold (1994) the highest proportions of drinkers were found in the North Central region of the United States. There were higher incidence rates at institutions located in communities of 100,000 people or less compared with larger communities.

Alcohol has long been the drug of choice among American college students. Another national study estimates that university students spend approximately $4.2 billion annually on alcohol, an amount that could purchase nearly 430 million gallons of alcoholic beverages or 4 billion cans of beer. Nearly 4% of all university students reported drinking daily, and 41% (or 3 million students) reported binge drinking in

the last two weeks of being surveyed (U.S. Department of Education, 1992; Weshsler et al. 1994).

Another national study conducted by Lewis Eigan (1991) estimated that students spend $5.5 billion on alcohol (mostly beer). This approximates to nearly $466 per year per university student.

College students are very aware that alcohol use can lead to negative consequences. Alcohol on college campuses is a factor in 40% of all academic problems and 28% of all dropouts (Anderson, 1994). In another study, conducted by the Core Institute, nearly one-third of college students surveyed said they had wished that alcohol not be so readily available at campus events (1991). Approximately 360,000 of the nation's 12 million undergraduates will eventually die from alcohol related problems. This is more than the number who get masters degrees and doctorates combined (Eigan, 1991).

Tobacco Use

Tobacco is another drug of choice for people today. Its use is restricted by anyone under the age of 18 in the United States. According to the U.S. Health and Human Services Department (1993), smoking is the most preventable cause of death in our society. Tobacco use is responsible for nearly one in five deaths in the United States. Based on data from the American Cancer Society's Cancer Prevention Study, it has been estimated that 419,000 US deaths were attributable to smoking in 1990. Throughout the world, approximately 2.1 million people in developed countries die each year as a result of smoking (Peto et al. 1994).

In the U.S., several notable national studies on smoking prevalence are conducted each year with each study producing somewhat different results depending on their methodology.

The National Health Interview Survey (NHIS) data indicates that cigarette smoking among adults has declined from nearly 42% in 1965 to 25% in 1990, a reduction of 41 percent (National Center for Health Statistics, 1996). Between 1983 and 1994, smoking prevalence among men 18 and older declined from 34% to 28%. The smoking prevalence among women 18 and older also declined, from 30% to 24%. Per capita consumption of cigarettes on a daily basis also continues to decline (U.S. Department of Agriculture, 1997).

The U.S. Department of Health and Human Services has also reported that smoking among adults has decreased. An important accomplishment of the second half of the 20th century has been the reduction of smoking prevalence among people 18 years and older from a 1965 level of 42.4% to 24.7% in 1997. Men were found to have a higher rate of prevalence at 27.6% than women at 22.1% (1998).

In contrast, the National Institute on Drug Abuse suggests an increasing trend of smoking among young adults aged 18 to 25. They report that smoking has increased from 34.6% in 1994 to 40.6% in 1997 and 41.6 percent in 1998. NIDA expects that smoking will continue to increase in the new millennium (1998).

The Center for Disease Control and Prevention (CDC) also expects people to continue to use tobacco. Approximately 48 million U.S. adults continue to smoke cigarettes. Approximately 50% of those smokers will die from a smoking-related disease. Although the number of cardiovascular deaths is declining, smoking-related

cancer deaths continue to rise (CDC, 1990). There is also the increased economic burden of tobacco use. Indirectly it will amount to $50 billion in medical expenditures and $50 billion in other indirect costs (CDC, 1996).

According to the Monitoring the Future study, prepared by the University of Michigan, adolescents in high school continue to smoke cigarettes and use smokeless tobacco. Cigarette smoking has not changed significantly since 1975 levels. Approximately 36.7% of the class of 1975 had smoked a cigarette in the last thirty days compared to 35.1% of the class of 1998 (Johnston, O'Malley, Bachman, 1999).

The U.S. Department of Education survey of 89,874 college students in 1995-96, found 44.4% of college students had used tobacco within the last year (1998). Almost 35% of the students reported using tobacco within the 30 days prior to completion of the survey (U.S. Department of Education, 1998). Other national surveys suggest either the same or similar findings.

Illegal Drug Use

The National Household Survey of Drug Abuse (NHSDA) reported that an estimated 13.9 million Americans were current users of illicit drugs in 1997, meaning they had used an illicit drug sometime during the last 30 days prior to the interview. This survey has been the primary source of estimates of the prevalence and incidence of illicit drug, alcohol, and tobacco use in the population since 1971. There has been a notable decrease since 1979, when the number of current illicit drug users was 25 million (NHSDA, 1998).

The Substance Abuse and Mental Health Services Administration (SAMHSA) stated in 1998 that 77 million Americans age 12 or older (36% of the U.S. population)

reported drug use at least once in their lifetime. Over one-tenth (11%) reported use of a drug within the past year and 6% reported use of a drug within the past month (1998).

The National Institute on Drug Abuse (NIDA) suggest, that we should continue to measure the first use of drugs to obtain a better indicator of how many people are continuing to try drugs, despite all of the drug education offered in schools and throughout the media. NIDA has estimated that 2.1 million people first tried marijuana in 1997. This translates to about 5,800 new marijuana users per day. Nearly 81,000 people first tried heroine in 1997 and there were an estimated 730,000 new cocaine users and 1.1 million new hallucinogen users in 1997 (NIDA, 1998).

Monitoring drug use among American youth is also important. The Monitoring the Future study (MTF) is the most notable national study that researches high school students' use of illicit drugs. The study began in the early 1950s and has since progressed into one of the more important research tools we have to study the frequency of drug use among high school students. Drug trends suggest that marijuana use, stimulants, and sedatives have been reduced since the 1980s while monthly consumption of inhalants, hallucinogens, heroin, other opiates, and tranquilizers have remained relatively constant. However, prominent researchers Saltz and Elandt (1986) reveal that the statistics underestimate the real problem that adolescent students are facing. There are still between 20% and 30% of grade twelve high school students that are using illicit drugs. Although there are fewer students using drugs on an annual basis since the mid-1970s, the lifetime prevalence of use of

twelfth graders remains essentially unchanged (Johnston, O'Malley and Bachman, 1999).

Johnson, O'Malley and Bachman have been the leading researchers of the Monitoring the Future project at the University of Michigan and they continue to do research on college campuses. According to their self-report surveys that have been administered since the early 1970s, the use of drugs such as cocaine and crack have been reduced while rates of other drug usage like marijuana have increased since 1983. Currently, one-fifth (18.6%) of university students had used marijuana within 30 days of the administration of the survey. However, the trends of inhalant, hallucinogen (including LSD), heroin, stimulant, sedative and tranquilizer use have remained almost unchanged (Johnston, O'Malley, Bachman, 1999).

In 1984, 7.6% of the students studied revealed that they used cocaine within the previous month. Today, statistics indicate that only 1.7% of college students have used cocaine within the last month, a dramatic decrease (Johnston, O'Malley, Bachman, 1999).

Stimulants like *"Crystal Meth"* have also dramatically decreased. At the turn of the 1980s, nearly 7% of college students had used a stimulant within the last month compared with half of one percent of today's college students that use a stimulant once or more per month (Johnston, O'Malley, Bachman, 1999) as seen in Table 2.

Table #2 - Reported Drug Use by College Students

	Percent Who have used in the last 30 days												
Type of Drug	86'	87'	88'	89'	90'	91'	92'	93'	94'	95'	96'	97'	98'
Marijuana	22.3	20.3	16.8	16.3	14.0	14.1	14.6	14.2	15.1	18.6	17.5	17.7	18.6
Inhalants	1.1	0.9	1.3	0.8	1.0	0.9	1.1	1.3	0.6	1.6	0.8	0.8	0.6
Hallucinogens	2.2	2.0	1.7	2.3	1.4	1.2	2.3	2.5	2.1	3.3	1.9	2.1	2.1
Cocaine	7.0	4.6	4.2	2.8	1.2	1.0	1.0	0.7	0.6	0.7	0.8	1.6	1.7
Heroine	*	0.1	0.1	0.1	*	0.1	*	*	*	0.1	*	0.2	0.1
Stimulants	3.7	2.3	1.8	1.3	1.4	1.0	1.1	1.5	1.5	2.2	0.9	2.1	1.7
Sedatives	0.6	0.6	0.6	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tranquilizers	1.9	1.0	1.1	0.8	0.5	0.6	0.6	0.4	0.4	0.5	0.7	1.2	1.3
Alcohol	79.7	78.4	77.0	76.2	74.5	74.7	71.4	70.1	67.8	67.5	67.0	65.8	68.1
Cigarettes	22.4	24.0	22.6	21.1	21.5	23.2	23.5	24.5	23.5	26.8	27.9	28.3	30.0

* denotes less than 0.1

Source: Johnston L.D., O'Malley P.M., Bachman J.G., *National survey results on drug use from the Monitoring the Future study, 1975-1998*. Vol I: secondary school students. Rockville, Maryland: National Institutes of Health, National Institute on Drug Abuse, 1999.

National statistics reveal that marijuana is now the illegal drug of choice for college students. Approximately 31.3% of the college students surveyed said they had used marijuana over the last twelve months and nearly one-fifth (18.6%) of the university students had used marijuana over the previous 30 days. Amphetamines, hallucinogens and cocaine were always the most popular hard drugs among university students. Over the last decade, there has also been an increase in use of designer and synthetic drugs. Approximately 3.6% to 5.7% of college students surveyed indicated they had used a designer or newer drug within the last year (U.S. Department of Education, 1998).

Significance of this Study

Drug use is a major concern in the United States today, although research seems to indicate that drug use is not increasing to such proportions as suggested in the media. Due to advances in research methodologies, drug use is now becoming easier to measure. As the Internet continues to grow and the world gets smaller and smaller with technological breakthroughs, the author expects to see drug use research

increase because researchers are more capable of discussing research and other factors that may influence drug use, which may contribute to better drug use measures.

This thesis contributes to the measurement of drug use among collegiate students. There is a general lack of research and analysis as to the frequency of drug use by university students, especially in rural areas. In addition, there is very little literature linked to theories of drug use/ non-use. This research evaluates Travis Hirschi's social control theory as a potential model for the prediction of drug use/ non-use, specifically, among college students.

CHAPTER II

COLLEGIATE SUBSTANCE USE

This chapter is a summary of the compiled literature in the field of collegiate alcohol and drug studies. The chapter is organized into the subjects of dangerous effects and consequences of substance use and the variability of drug use in American universities today. Acquiring information on collegiate drug use (either alcohol, tobacco, or other drugs) presents a significant understanding of how frequent drug use is on U.S. college campuses.

Alcohol

Alcohol is the product of the fermentation of starches and sugars that creates a colorless, volatile, flammable liquid. Alcohol is a depressant drug that slows down the action of the central nervous system, acts as a mild anesthetic and is toxic in large quantities. Common reactions to alcohol include the release of inhibition, relaxation, talkativeness and sociability. Higher doses can lead to loss of control (slurred speech, blurred vision and wobbly legs) and even loss of consciousness.

Regular use of alcohol can lead to a tolerance, or someone needing to take more alcohol to get the same effect. It may also lead to a physical dependence; where someone who is dependant becomes ill if they don't consume alcohol. Alcohol use has also been linked to a variety of social problems, including domestic violence and violent crime, as the loss of inhibitions after drinking may also lead to aggressive behavior (Engs and Hanson, 1985).

Long-term use of alcohol is known to cause several physical consequences including liver damage, stomach cancer and heart disease. Alcohol also reduces a person's sensitivity to pain (Engs and Hanson, 1985). It is also possible to suffer injuries and not realize it until the alcohol effect wears off. In addition, alcohol causes dehydration, so taking alcohol with other drugs that dehydrate (like speed or ecstasy) is potentially very risky (Wechsler, Davenport, Dowdall, Moeykens, Castillo, 1994).

Large amounts of alcohol can cause overdosing which may lead to a loss of memory, consciousness and could lead to death. For a non-tolerant person, about 30 drinks would end in a trip to the hospital and could be fatal. If someone is drunk, the only thing that will help him/ her to sober up is time for recovery. The body breaks down alcohol at the rate of one unit per hour being metabolized by the liver. Giving someone black coffee, speed or a cold shower to sober him/ her up will not make a person's liver work any faster. This person will still be intoxicated and his/ her judgment will be questionable despite being wide-awake (Wechsler, Davenport, Dowdall, Moeykens, Castillo, 1994).

Taking alcohol with other drugs that have depressant effects (like heroin, methadone and some prescribed medicines) and may increase the potential for overdose. Even if a person does not overdose, he/ she could still vomit while unconscious and choke to death (Wechsler, Davenport, Dowdall, Moeykens, Castillo, 1994).

Collegiate Use

Several large studies indicate that college student's alcohol use continues to be a problem. Each university has different characteristics and therefore it can be

expected that smaller studies would have some variation from the larger national studies that are shared.

Binge Drinking

Binge drinking prevalence varies among campuses, ranging from almost nil to nearly 70% of collegiate students. Binge drinking is the consumption of five or more drinks in a row on at least one occasion within the last two weeks of being surveyed (CDC, 1997). Rates will have varied depending on the composition of each college. This may be due to geographical location, administrative programs such as drug education prevention and, or the ethnic and gender-based makeup of the student body of each college (Presley, Meilman, Lyerla, 1995).

[illegible] national study of [illegible] indicates that the percentage of students who are drinking now is similar to the percentage of students drinking five and twenty-five years ago. Therefore, many researchers are interested why the media, college personnel, and individuals associated with educational institutions consider drinking a more serious problem now than in the past (Engs, 1977).

Students' heavy alcohol use, or binge drinking, is by far the single most serious public health problem confronting American colleges. In 1993, the Harvard School of Public Health College Alcohol Study (CAS) surveyed students on a national level using a representative sample of colleges. The 1993 findings showed that binge drinking was widespread among college students (Wechsler, Davenport, Dowdall, Moeykens, Castillo, 1994). Almost half of the students surveyed (44%) were classified as binge drinkers, the men reporting that they consumed five or more drinks in a row and the women four or more drinks in a row at least once in the two

weeks before the survey. In one-third of the colleges surveyed, it was reported that more than half of the student body were considered binge drinkers (Wechsler, Moeykens, Davenport, Castillo, Hansen, 1995).

In 1997, the Harvard School of Public Health College Alcohol Study resurveyed the colleges that participated in a 1993 study. Results indicated a slight decrease in the percentage of binge drinkers and slight increases in percentages of abstainers and heavy drinkers. It was also found that the Northeast U.S. colleges had the greatest decrease in binge drinking compared with other regions (Wechsler, Kuhn, Davenport, 1996).

The National Institute on Alcohol Abuse and Alcoholism (NIAAA) provides a great deal of information on alcohol use. The Institute found that an overwhelming majority of college students (88%), including those under the legal drinking age have used alcohol. In 1994, 67.5% of collegiate students were found to have used alcohol within the previous 30 days, a rate that has declined since 1980.

A report published by the Core Institute at Southern Illinois University in Carbondale (SIUC) suggests that alcohol is the most widely used drug on college campuses. Overall, 83% of students reported drinking in the one-year period prior to the survey, 70% reported drinking within the previous 30 days, and 22% reported that they were social drinkers (1998).

According to a nationwide scientific study approximately 86% of all college students drink. In a recent study at Columbia University, it was found that 79% of the undergraduate students drank. Of the drinkers at Columbia University, 26% drank alcohol two days or less per month; 31% three to six days per month; 18% drank

seven to ten days per month, 9% drank eleven to fourteen days per month; and 16% drank more than fourteen days per month. One in five of the students reported abstaining from alcohol (Core Institute, 1998).

A New York study found that 44% of undergraduate students binge drink and that 23% of men and 17% of women were heavy drinkers. One of the more shocking statistics was that in 1997, 52% of students drank for the sole purpose of getting drunk, where just four years earlier in 1993 only 39% of students drank for this reason. Approximately two of every five students that were surveyed (42.7%) were binge drinkers, with equal proportions of occasional (21.9%) and frequent (20.7%) binge drinkers. One in five students (19.9%) were found to have abstained from alcohol (Weschler, Molnar, Davenport, Baer, 1999).

The same study also found that a distressing number of collegiate students continued to use alcohol in their decision to live on or off campus. Students that were surveyed either attended a college in Upstate New York or Suburban New York City. The students in upstate New York were found to have higher use rates than those attending a college in New York City. Students that live on-campus also have higher use rates than those living off-campus (Weschler, Molnar, Davenport, Baer, 1999). Binge drinking was also found to be more centrally located in fraternities and sororities (Wechsler, Kuhn, Davenport, 1996).

Greek Houses

Evidence also suggests that pledges or members of sororities and fraternities report greater rates of alcohol consumption and drinking-related problems than non-Greeks (Kidman and Stomach, 1984; Tempe, 1990).

If colleges are to have an impact on their alcohol problems, they must change this drinking culture drastically. Although Greek society members are only a small minority of the national college population, their influence is far greater. They serve as a center for social activities on many campuses (Wechsler, Kuhn, Davenport, 1996).

Despite highly publicized tragedies and continuing examinations of alcohol policies, 2 of 3 fraternity and sorority members are still binge drinkers. For those fraternity and sorority members who live in Greek houses, the statistics are even more extreme. Four of five of these students are binge drinkers and half were frequent users (Wechsler, Kuhn, Davenport, 1996).

The degree of social acceptance is directly linked to drinking behavior. In one report, fraternity and sorority members reported drinking more frequently than those not affiliated with Greek houses (Baer, Kivlahan, Marlatt, 1995). There are accepted high levels of alcohol consumption (Baer, 1994). Fraternity-sponsored parties also foster heavy drinking (Baer, 1994). Studies have found that students who consider parties and/ or athletics important are more likely to binge drink or to drink heavily (Wechsler and Isaac, 1992). Drinking in groups and serving oneself may promote higher levels of alcohol consumption. In one study, college students at bars drank more beer when in groups and when ordering pitchers than when alone and when ordering glasses or bottles (Geller, Russ, Altomari, 1986). In another study, beer drinkers assigned to serve themselves at a fraternity party drank more than those assigned to receive beer from a bartender (Geller and Kalsher, 1990). In simulated natural settings (like a simulated tavern), the amount of alcohol consumed by college

students was influenced by the social behavior and drinking of those around them (Marlatt, Baer, Larimer, 1995).

The Core Institute has reported that fraternities and sororities continue to be at the center of the campus alcohol culture. Moreover, students involved in fraternities and sororities have reported higher usage rates than those not involved in Greek houses (1998).

Gender Differences

The majority of studies have shown that a higher percentage of men drink and experience drinking-related problems than women (Engs and Hanson, 1990; Loughlin and Kayson, 1990; Saltz and Elandt, 1986; Engs and Hanson, 1985). In addition, recent studies (Billingham, Post, Gross, 1993; Gustafson, 1993; Robinson, Gloria, Roth, Schuetter 1993) have reported that men generally consume alcohol more frequently and in greater quantities than women.

Johnson, O'Malley and Bachman have reported that approximately thirty-one percent of college women reported binge drinking compared to 52 percent of college men (Johnston, O'Malley, Bachman, 1975-1984). However, a strong argument has been made that a more equivalent bingeing criterion for women is four drinks per occasion and that the five-drink level may underestimate binge drinking among women (Wechsler, et al. 1995).

Other studies have suggested that male college students are more likely than females to be heavier drinkers (Straus and Bacon, 1953; Rogers, 1970). Glassco (1975) concurred after examining similar results at a southern state university. Blane and Hewitt (1977) examined 22 surveys that presented gender-specific data for

collegiates and found that virtually each survey revealed that men are more likely to drink than women. The same relationship has been reported by Biber, Hashway and Annick (1980) at a college in Boston, Kozicki (1982) at a Midwestern university, Trotter (1982) at a southwestern state college, Iutcovich and Iutcovich (1982) at four colleges in northwestern Pennsylvania, Barnes and Welte (1983) at 22 colleges in New York state, Beck (1983) at a public college in Maryland, Peterson and Allen (1983) at a university in Illinois, McCarthy (1983) at a university in Illinois, and by Hughes and Dodder (1984) at a university in Oklahoma.

Men are generally more frequent and higher consumers of alcohol and it has been confirmed for decades. This has been confirmed by Orford *et al.* (1974), Smart and Schmidt (1975), Rachel *et al.* (1975), Kuder and Madson (1976), Engs (1977), Hockhauser (1977), Wilsnack and Wilsnack (1978), Hill and Bugen (1979), Roizen, Clark and Milkes (1979), Johnson and Sedlacek (1979), Kaplan (1979), Scheller-Gilkey, Gomberg and Clay (1979), Strange and Schmidt (1979), Wechsler and McFadden (1979), Biber *et al.* (1980), Perkens, Jenkins and McCulloch (1980), Wechsler and Rohman (1981), Iutcovich and Iutcovich (1982), Trotter (1982), Engs (1982), Wakefield (1982), Beck (1983), Barnes and Welte (1983), Peterson and Allen (1983), Anderson (1984), Geller (1984), Keane and WinWord (1984), Rapport *et al* (1984), Engs and Hanson (1984), and Berkowitz and Perkins (1984).

Age Differences

Developmentally, the ages 18 through 21 is the period of heaviest alcohol consumption for most drinkers in the United States (Chen and Kandel, 1995). However, within this heavy-drinking age group, binge drinking is more prevalent

among college students than non-students (Johnston, O'Malley, Bachman, 1975-1984). Studies indicate that 41% of college students engage in binge drinking as compared to 34% of non-collegiate students (Crum, Helzer, Anthony, 1993).

Students' drinking patterns vary with their ages and their years in college (Marlatt, Baer, Larimer, 1995). One survey reported that more students under the age of 21 binge drink and have alcohol-related problems than those over the age of 21 (Presley, Meilman, Lyerla, 1995). However, Wechsler and his colleagues (all well respected researchers in the field of drug use) found that age differences in drinking rates apply only to older students, those who drink less than traditional younger aged students (1995).

A New York study also found that younger students (aged 16-20) have higher user rates than older students (21 years and older). Nearly half (45%) of the younger students surveyed drank frequently compared to 34% of older students (OASIS, 1996).

A positive association has also been found between both quantity and frequency of drinking with both age and with college year (Wechsler, Dowdall, Davenport, Castillo, 1995; Engs and Hanson 1985,1989; Crum, Helzer, Anthony, 1993). As students get older and progress through their university years, they are more likely to decrease their frequency of use (Wechsler, Dowdall, Davenport, Castillo, 1995).

Ethnicity Differences

In a survey of multiple campuses, research has indicated that white students reported the highest percentage of binge drinking in a 2-week period at 43.8%,

followed by Native American students at 40.6%, 31.3% of Hispanic peoples reported binge drinking, 22.7% of Asian peoples reported binge drinking, and 22.5% of Black and African American students reported binge drinking (Presley, Meilman, Lyerla, 1995).

A College Health Risk Behavior Survey (performed by the Center for Disease Control and Prevention) was given to students nationally in 1994. Nationwide, 89.9% of college students had reporting having at least one drink of alcohol during their lifetime (see Table #3 below)

Table #3 - Lifetime Alcohol Use by College Students

Lifetime Alcohol Use			
	Female	Male	Total
Age: 18-24	86.8	88.9	87.8
>= 25	92.2	95.8	93.6
Race: White	92.2	93.2	92.6
Black	81.0	85.4	82.7
Hispanic	86.7	88.4	87.5

Source: Center for Disease Control and Prevention. Youth Risk Behavior Surveillance: National College Health Risk Behavior Survey. United States, 1997. MMWR 1995 46: 1-54.

The survey also suggested that 68.2% of college students had at least one drink of alcohol during the 30 days preceding the survey. Male students (72.9%) were significantly more likely than female students (64.5%) to report current alcohol use. After comparing ethnicity, it was found that White (72.4%) students were more likely than Hispanic (63.6%) students and Black students (54.2%) to report current alcohol use (CDC, 1997). See Table #4 below.

Table #4 - Current Alcohol Use by College Students

Current Alcohol Use			
	Female	Male	Total
Age: 18-24	67.0	73.2	70.0
>= 25	60.8	71.8	65.0
Race: White	69.7	75.7	72.4
Black	49.0	62.5	54.2
Hispanic	58.0	71.2	63.6

Source: Center for Disease Control and Prevention. Youth Risk Behavior Surveillance: National College Health Risk Behavior Survey. United States, 1997. MMWR 1995 46: 1-54.

In Table 5, it can be seen that male students (43.8%) were more likely than female students (27.0%) to report current heavy drinking. Students aged 18-24 years (41.5%) were also more likely to drink heavily than students 25 or older (22.0%). White students (39.5%) were more likely to drink heavily than Hispanic (30.2%) and Black (12.5%) students. An examination of subgroups by gender indicated a significant variation in drinking patterns between female students aged 18-24 years (34.8%) and those aged greater than or equal to 25 years (15.7%). Male students aged 18-24 years (48.7%) were also more likely to drink heavily than those students 25 or over (32.2%). Examination of subgroups by gender also indicated that the race/ethnicity differences varied by sex. Among females, White students (31.6%) were significantly more likely than Hispanic (22.6%) and Black (6.1%) students to report current episodic heavy drinking. Among males, White (49.4%) and Hispanic (39.9%) students were significantly more likely than Black (22.8%) students to report current episodic heavy drinking (CDC, 1997).

Table #5 – Heavy Binge Drinking by College Students

Heavy Binge Drinkers			
	Female	Male	Total
Age: 18-24	34.8	48.7	41.5
>= 25	15.7	32.2	22.0
Race: White	31.6	49.4	39.5
Black	6.1	22.8	12.5
Hispanic	22.6	39.9	30.2

Source: Center for Disease Control and Prevention. Youth Risk Behavior Surveillance: National College Health Risk Behavior Survey. United States, 1997. MMWR 1995 46: 1-54.

Tobacco

Nicotine is a drug found naturally in tobacco. Although many people smoke because they believe cigarettes calm their nerves, smoking releases epinephrine, a hormone that in fact creates physiological stress in the smoker, rather than relaxation. The use of tobacco is addictive. Most users develop tolerance for nicotine and need greater amounts to produce the desired effect. Smokers become physically and psychologically dependent and will suffer withdrawal symptoms that include changes in body temperature, heart rate, digestion, muscle tone, and appetite. Psychological symptoms from withdrawal may include irritability, sleep disturbances, nervousness, headaches, fatigue, nausea, and cravings for tobacco that can last a few days or an entire lifetime (CDC, 1994).

According to the Center for Disease Control and Prevention, when smoke is inhaled, nicotine is carried deep into the lungs where it is absorbed quickly into the bloodstream and carried to the heart, br[illegible], liver, and spleen. Nicotine affects many parts of the body, including the heart, blood vessels, the hormonal system, body metabolism, and the brain. For women, there are unique risks. Nicotine can be found in breast milk and in cervix mucous secretions of women. Nicotine freely crosses the

placenta and has been found in amniotic fluid and the umbilical cord blood of newborn infants. Women over 35 who smoke and use *"the pill"* (or other oral contraceptives) are in a high-risk group for heart attack, stroke, and blood clots of the legs. They are also more likely to have a miscarriage or a lower birth-weight baby (CDC, 1997).

Cigarette smoking is perhaps the most devastating preventable cause of disease and premature death (CDC, 1990). Health reasons usually top the list of reasons people give for quitting smoking. The pharmacological and behavioral processes that determine tobacco addiction are similar to those that determine addiction to drugs such as heroin and cocaine (CDC, 1997). Smoking increases the risk of respiratory diseases such as emphysema, chronic bronchitis and chronic obstructive pulmonary disease (COPD). Smokers have twice the risk of dying of heart attacks, as do non-smokers. Smoking is a major risk factor for peripheral vascular disease, a narrowing of the blood vessels that carry blood to the leg and arm muscles.

Smoking not only harms your health but the health of those around you. Exposure to environmental tobacco smoke (also called passive smoking or second hand smoke) includes exhaled smoke as well as smoke from burning cigarettes. Studies have shown that environmental tobacco smoke can cause lung cancer in healthy non-smokers. It has also been associated with sudden infant death syndrome (SIDS), and low-birth weight infants. Babies and children raised in a household where there is smoking have more ear infections, colds, bronchitis, and other respiratory problems than children from non-smoking families do. Environmental smoke can also cause eye irritation, headaches, nausea, and dizziness (CDC, 1997).

In addition to being responsible for 87% of lung cancers, smoking is also associated with cancers of the mouth, pharynx, larynx, esophagus, pancreas, uterine cervix, kidney, and bladder. Smoking accounts for at least 29% of all cancer deaths, is a major cause of heart disease, and is associated with conditions ranging from colds and gastric ulcers to chronic bronchitis, emphysema, and cerebro-vascular disease. (Thun, Day-Lally, Calle, Flanders, Heath, 1995).

Collegiate Use

The Core Alcohol and Drug Survey suggest that tobacco use is very prominent on university campuses. In a 1995-96 survey, a sample was drawn from 89,874 college students nationwide. Nearly 35% of students reported using tobacco within the last thirty days prior to completing the survey (Core Institute, 1997).

The University of Michigan reported in 1998 that 30% of students reported smoking within the last 30 days. After observing the pattern of smoking over the past fifteen years, trends suggest that tobacco use is at the highest rate since 1983 (24.7%). The same can be said about tobacco use during the last 12 months. Approximately 44% of students had smoked on at least one occasion. The 1998 results suggest that students are continuing to smoke at the highest rates since 1983 (Johnston. O'Malley, Bachman, 1999).

Findings from a statewide college survey indicate that tobacco is one of three primary substances used by college students. In 1996, the New York State Office of Alcoholism and Substance Abuse Services (OASAS) conducted a survey of alcohol and other drug use among full-time and part-time undergraduate students in the state

of New York. Almost 60% of students reported using tobacco products in their lifetime and approximately one in five continued to use tobacco at least once a year.

Gender, Age and Ethnicity Differences

In 1999, the University of Florida used a pre-determined instrument to measure the knowledge, attitudes and behaviors of tobacco use among university students at four-year institutions. A surprising 45.4% of college students who participated in the survey reported never trying a cigarette. Nearly 15% of the students reported having one or more cigarettes in their lifetime. Almost 30% of respondents surveyed reported having a cigarette in the last 30 days. Only 4.5% of University of Florida's students used chew or dip in the previous 30 days while 83.1% never tried it. Men were more likely to use cigarettes within the last 30 days (29%) as compared to women (28%). Men were also almost ten times more likely to use other tobacco products (dip or chew) than women. Statistics reveal a gradual decrease in use (within the last thirty days) as a student got older. Approximately 35% of freshmen had used tobacco within the last 30 days as compared to 23.8% of seniors and students in their fifth year and beyond. The survey also examined whether or not ethnicity was a significant factor. The University of Florida found that Hispanics (36.0%) were more likely to use a cigarette in the past 30 days than American Indians (33.3%), Whites (29.1%), Asian/ Pacific Islanders (27.9%), and Black people (4.6%).

The University of Florida (1999) also found that on average, students residing in Greek houses on campus smoke more often than the general student population (40.4% to 28.4% respectively). They also found that Greeks (12%) were more likely

to be frequent users of tobacco products like dip and chew than those not affiliated with Greek houses (5.0%).

As compared to the national data collected by Wechsler et al., at the Harvard School for Public Health, the amount of cigarette use by University of Florida students (39.9%) was nearly identical to the national average of 39.2% (Wechsler et al.1994; University of Florida, 1999).

A National College Health Risk Behavior Survey (NHRBS) suggests that nearly three-fourths (74.8%) of college students nationwide have tried cigarette smoking. Students aged 25 years and older (83.1%) were more likely than students aged 18 to 24 (70.0%) to have ever tried cigarettes. White students (78.2%) were more likely than Hispanic (72.7%) and Black (60.7%) students to have smoked before. After careful examination, gender comparisons were significant. Results showed a significant age difference between female students 25 and older (82.6%) and those 18-24 (69.3%) and between male students 25 and older (83.8%) and those who are 18-24 years (70.8%). Among females, White students (78.1%) were significantly more likely than Hispanic (70.4%) and Black (63.2%) students to have smoked before. Among males, White (78.4%) and Hispanic (75.2%) students were significantly more likely than Black students (56.7%) to have ever tried cigarettes (CDC, 1997). See Table #6 below.

Table #6 - Lifetime Tobacco Use by College Students

Lifetime Tobacco Use			
	Females	Males	Total
Age: 18-24	69.3	70.8	70.0
>= 25	82.6	83.8	83.1
Race: White	78.1	78.4	78.2
Black	63.2	56.7	60.9
Hispanic	70.4	75.2	72.7

Source: Center for Disease Control and Prevention. Youth Risk Behavior Surveillance: National College Health Risk Behavior Survey. United States, 1997. MMWR 1995 46: 1-54.

In Table 7, more than one-fourth (29%) of college students nationwide were found to be current tobacco users. White students (31.8%) were significantly more likely than Hispanic (25%) and Black (14.2%) students to report current cigarette and tobacco use (CDC, 1997).

Table #7 – Current Tobacco Use by College Students

Current Tobacco Use			
	Females	Males	Total
Age: 18-24	28.2	29.4	28.8
>= 25	27.6	30.7	28.7
Race: White	31.7	32.0	31.8
Black	12.6	16.8	14.2
Hispanic	23.7	26.8	25.0

Source: Center for Disease Control and Prevention. Youth Risk Behavior Surveillance: National College Health Risk Behavior Survey. United States, 1997. MMWR 1995 46: 1-54.

Nationwide, 16.5% of college students had smoked cigarettes on greater than or equal to 20 of the 30 days preceding the survey that defines frequent cigarette use. Students aged 25 and older (21.3%) were significantly more likely than students aged 18-24 (13.5%) to report frequent cigarette use. White students (19.0%) were more likely than Hispanic (8.0%) and Black (7.0%) students to frequently smoke. When controlling for gender, it was found that female students 25 and older (21.8%) smoked more than those aged 18-24 (14.6%). Male students 25 and older (20.5%)

also reported smoking more frequently than those aged 18-24 (12.2%). Inter-correlating sex with ethnicity it was found that among females, White students (20.3%) were significantly more likely than Black (8.4%) and Hispanic (8.3%) students to report frequent cigarette use. Among males, White students (17.2%) were significantly more likely than Hispanic (7.8%) and Black (5.0%) students (CDC, 1997). See Table #8 below.

Table #8 – Frequent Tobacco Use by College Students

Frequent Tobacco Use			
	Females	Males	Total
Age: 18-24	14.6	12.2	13.5
>= 25	21.8	20.5	21.3
Race: White	20.3	17.2	19.0
Black	8.4	5.0	7.0
Hispanic	8.3	7.8	8.0

Source: Center for Disease Control and Prevention. Youth Risk Behavior Surveillance: National College Health Risk Behavior Survey. United States, 1997. MMWR 1995 46: 1-54.

Illicit Drugs

There are several different ways for classifying illegal drugs. Perhaps the most widely accepted form of grouping drugs is the pharmacological classification, which differentiates between each drug by their chemical compositions followed by a discussion of the effects of each drug and the frequency of collegiate use.

Cannabis

Cannabis, which includes Marijuana, Hashish, and Hash oil were found to be the most widely used of all illegal drugs among college students. Cannabis refers to the preparations of the plant *Cannabis sativa* (Latin for "cultivated hemp"). THC, delta-9-tetrahydrocannabinol, which occurs naturally within the body can also be

synthetically prepared as a major psychoactive ingredient in cannabis preparation (National Center for Health Statistics, 1996).

Marijuana is a green or gray mixture of dried, shredded flowers and leaves of the hemp plant *Cannabis sativa*. There are over 200 slang terms for marijuana including "*pot, grass, weed, reefer*" or "*ganja.*" It is usually smoked as a cigarette (called a *joint* or a *nail*) or in a pipe or *bong* (CDC, 1997).

Someone who smokes marijuana regularly may have many of the same respiratory problems as tobacco smokers. These individuals will often have symptoms of chronic bronchitis and more frequent chest colds (National Center for Health Statistics, 1996). The short-term effects of marijuana use include problems with memory and learning, distorted perception, difficulty in thinking and problem solving, loss of coordination, and increased heart rate, anxiety, and panic attacks.

Recent findings show that long-term use of marijuana produces changes in the brain similar to those seen after long-term use of other major drugs of abuse. Continuing to smoke marijuana can lead to abnormal functioning of lung tissue injured or destroyed by marijuana smoke. Marijuana (like other Cannabis products) may be either physically or psychologically addictive, which may cause compulsive drug craving, seeking, and use (CDC, 1997; National Center for Health Statistics, 1996).

Collegiate Use

Studies indicate that marijuana use is still the most prominent illegal drug on university campuses today. The Core Institute, affiliated with the Center for Alcohol and Drug Studies, repeatedly cautions university administrators that marijuana use is

the third most used drug on campus (following alcohol and tobacco respectively). The Center for Alcohol and Drug Studies completed a national study of 89,874 college students in the United States in 1995-96. It found that nearly one-third (31.3%) of students had used marijuana in the past year and 18.6% had used marijuana in the last thirty days prior to completing the survey (Core Institute, 1998).

The University of Michigan has also conducted national studies in the field of college drug use. However, this research indicates a decreased pattern of marijuana use since the early 1980s. In 1983, 26.2% of students reported using marijuana in the previous month. In 1998, that figure had been reduced to 18.6%. It was a slight increase from the 1997 study (17.7%) suggesting that marijuana use is still prevalent in colleges but decreasing in use (1999).

Each university campus differentiates in how they develop their questionnaire, whether they had used a well-known instrument in the past, how their questions were developed, and the quantity and quality of their sample.

A large university in the Southwest reported that 37.9% of its students had used marijuana at least once in the last year. This compared to another Southern university that reported that only 28% of their students had used marijuana within the last year (Clifford et al. 1989).

A Meilman and associate's (1990) study of undergraduates at a New England college found marijuana to be the second most commonly used drug after alcohol. Almost 44% of student respondents acknowledged they had used marijuana in the previous year. O'Hare found in his Rutgers undergraduate study that 32% of students sampled reported using marijuana at least once in the previous year (1990).

Staggering numbers from the University of Wisconsin at Madison suggest that 56% of freshmen and 70% of seniors have used marijuana in the past year. These statistics continue to fluxuate, but it is widely accepted that marijuana is the most common illegal drug of choice on university campuses today (MacDonald, Barry, Fleming, 1992).

Gender, Age and Ethnicity Differences. The University of Florida (1999) also conducted an alcohol and drug use sample of its students. Marijuana was also prevalent on the university campus. Approximately 23% of respondents said they had used marijuana in the past month, and another 13.2% of respondents acknowledged they used marijuana within the last three months. Research indicated that freshmen would be more likely to use marijuana than seniors would. American Indians (58.3%), Hispanics (28.3%) and Whites (24.5%) were among the most prevalent users of marijuana. As past research has documented, males (27.4%) were more likely to use marijuana than females (20.5%). As documented by other studies, it was also found that members or affiliates with Greek houses were more likely to use than those not affiliated with Greek houses (37.6% to 25.6% respectively).

The National College Health Risk Behavior Survey revealed that 48.7% of college students in the United States had used marijuana sometime during their lifetime (1998). Those students 25 and older (59.6%) were significantly more likely than students 18 to 24 (42.5%) to report lifetime marijuana use. Approximately 14% of college students had used marijuana at least once during the month preceding the survey. Male students (17.1%) were significantly more likely than female students (11.6%) to report current marijuana use. Students aged 18 to 24 (17.3%) were more

likely than students aged greater than or equal to 25 years (8.3%) to report current marijuana use. The profile of a current marijuana user would most likely be a 18-24 year old White male (see Table #9 below).

Table #9 - Lifetime and Current Marijuana Use by College Students

	Lifetime			Current		
	Females	Males	Total *	Females	Males	Total *
Age: 18-24	40.8	44.4	42.5	14.7	20.3	17.3
>= 25	58.1	62.3	59.6	6.9	10.6	8.3
Race: White	51.6	53.7	52.5	13.0	15.7	15.5
Black	36.2	43.8	39.1	8.8	16.5	11.8
Hispanic	43.8	42.4	43.0	6.9	7.8	7.3

Source: Center for Disease Control and Prevention. Youth Risk Behavior Surveillance: National College Health Risk Behavior Survey. United States, 1997. MMWR 1995 46: 1-54.

Tranquilizers

Tranquilizers are the most prescribed of all drugs. The word tranquilizer is derived from the Latin term *tranquillus*, meaning "calm and serene." According to the CDC, tranquillizers are commonly prescribed for mild psychiatric disorders such as anxiety, nervousness, and sleeplessness, and as muscle relaxants. One of the most widely known tranquillizers is Valium (1997).

Diazepam, or its pharmaceutical name Valium, is often taken as a scored white, yellow, or light blue tablet (each having a stronger dosage respectively). Some of the short-term effects of using Valium are a feeling of euphoria, a loss of inhibition, relaxed muscle tension, reduced mental alertness and mildly impaired coordination. On some occasions (usually at high doses) a person could become enraged, have personality changes and sleep disturbances. Side effects such as skin rashes, nausea and dizziness have also been reported (CDC, 1989; CDC, 1997).

Librium, or chlordiazepoxide, is taken either internally or injected directly into the blood stream. Librium is very similar to Valium (although serving different medical purposes) in its high and its short term and long term effects. Serax (oxazepam), Ativan (lorazepam), Xanax (alprazolam), and Quaalude are also well known and commonly used tranquilizers. Each drug may have the same short term and long term effects but an increase in their dosages would result in a different effects (CDC, 1997).

Some tranquilizers accumulate in body tissues during sustained use over the long term. Diazepam has been found to accumulate in the liver, brain, heart and lungs of the fetus. After birth, those babies may then indicate withdrawal symptoms. Prolonged use may lead to an increased rather than reduced aggressiveness in some users (CDC, 1997).

Regular use induces tolerance, making increased doses necessary to produce a desired effect. A physical dependence can also occur, manifested by intense craving. Withdrawal symptoms may include sleeplessness, sweating, stomach cramps, agitation, tremors, delirium, convulsions and possibly death (CDC, 1989).

Collegiate Use

National and regional collegiate surveys have reported that about 3% to 5% of students have used tranquilizers like Valium or Librium. The MTF study has reported that less than 3% of students will use tranquilizers in a year and 1.3% will use within a month (1999). The MTF study also reported very little fluxuation in the general patterns over the last fifteen years.

There is very little research that has been done on tranquilizer use. Even some of the larger national studies such as the Core Institute have not acknowledged significant findings on the collegiate use of tranquilizers.

Stimulants

Stimulants are drugs that excite or speed up the central nervous system. They are generally used for their ability to increase alertness and endurance, to keep its users awake, to decrease the appetite, and produce feelings of euphoria. Stimulants, from the Latin word *stimulare*, meaning "to goad, torment and incite" are drugs that produce a quick increase of energy in the person (National Center for Health Statistics, 1996).

Cocaine is a powerfully addictive stimulant that directly affects the brain. Cocaine was one of the most popular drugs in the 1980s and 1990s (National Center for Health Statistics, 1996). Cocaine is one of the oldest known drugs and has been used for more than 100 years. The pure chemical, cocaine hydrochloride is derived from coca leaves, the source of cocaine that has been used for thousands of years (National Center for Health Statistics, 1996).

Cocaine is generally sold on the street as a fine, white, crystalline powder, known as "*C*, *coke*, *snow flake*, *nose candy*" and "*crack.*" Street dealers generally dilute it with cornstarch, talcum powder, sugar or other products to sell a greater quantity while reducing quality (CDC, 1997).

There are basically two chemical forms of cocaine: the hydrochloride salt and the *"freebase."* The hydrochloride salt, or powdered form of cocaine, dissolves in water and, when abused, can be taken intravenously (by injection) or by using the

nasal cavity. Crack is the street name given to the freebase form of cocaine that has been processed from the powdered cocaine hydrochloride form to a smoke-able substance. Crack refers to the crackling sound heard when the mixture is smoked. Crack cocaine is processed with ammonia or sodium bicarbonate (baking soda) and water, and heated to remove the hydrochloride. Because crack is smoked, the user experiences a high in less than 10 seconds. This rather immediate and euphoric effect is one of the reasons that crack became enormously popular in the mid 1980s. The drug can also be rubbed onto mucous tissues. Some users combine cocaine powder or crack with heroin in a "*speedball*" (National Center for Health Statistics, 1996).

According to the Center for Disease Control and Prevention office in Washington, D.C., other stimulants that are well recognized are Dexedrine (dextroamphetamine or "*dexies*"), Ritalin (methylphenidate) and Methadrine (methamphetamine, "*meth*" or "*speed*"). Methadrine has begun to be tracked by researchers as its use continues to rise since the early 1990s (1997).

Methamphetamines are powerfully addictive stimulant that dramatically affects the central nervous system. The drug is made easily in clandestine laboratories with relatively inexpensive over-the-counter ingredients. These factors combine to make methamphetamine, a drug with high potential for widespread abuse (CDC, 1997).

Methamphetamine is commonly known as "*speed*" or "*meth.*" In its smoked form it is often referred to as "*ice, crystal*" or "*crank.*" It is a white, odorless, bitter-tasting crystalline powder that easily dissolves in water or alcohol. After the initial rush, there is typically a state of high agitation, similar to cocaine. Methamphetamine,

like cocaine, comes in many forms and can be smoked, snorted, orally ingested, or injected. The drug alters moods in different ways, depending on how it is taken (CDC, 1997).

The short-term effects of *"meth"* use include the constriction of blood vessels, dilated pupils and an increased heart rate. Larger amounts will intensify the person's high, but could lead to bizarre, erratic, and violent behavior. Users may experience tremors, muscle twitches and paranoia. Other people suffer from restlessness, irritability, and anxiety (CDC, 1997). Symptoms could include violent behavior, anxiety, confusion, and insomnia. Users also can display a number of psychotic features, including paranoia, hallucinations, and mood disturbances (CDC, 1997). Long-term use results in many damaging effects, one of which includes addiction. Addiction is a chronic and relapsing disease sometimes characterized by compulsive drug seeking and drug use.

Collegiate Use

Survey results from the Monitoring The Future study (1999) have reported that the use of cocaine, crack and other stimulants has decreased in the last 15 years. The percent that used cocaine within the last 30 days has substantially decreased from a high of 7% in 1986 to 1.7% in 1998. The yearly user (the percent who have used in the last 12 months) has also decreased from 1983 levels of 17.3% to 1998 levels of 4.6%. Crack use has remained stable at 1% of those using in the last year and 0.2% using within the last 30 days prior to the survey.

In a New England survey of universities, it was found that cocaine use had been reduced after a ten-year follow-up study between the years 1977 and 1987.

Yearly cocaine use dropped from 14% to 4% for men and 8% to 2% for women (Meilman et al. 1990).

Clifford and some of his associates (1987) found that 17% of college students surveyed at a large university in the Southwest had used cocaine within the last year. Another Southern university reported that half of 1% of their sample of students had used a stimulant and that 6% had used cocaine before (Globetti et al. 1992). Ten percent of Rutgers University undergraduates reported that they had used cocaine in the past year, and less than 2% of its students were using per month (O'Hare, 1990).

The University of Florida reported that approximately 4% of students surveyed reported using cocaine and crack within the past year and 2.6% of the students used within the past month (1999).

The CDC reports that nationwide, only 4% of college students have ever used crack or free base forms of cocaine. Older students over the age of 25 years (8.4%) were more likely to have tried crack than students aged 18-24 years (1.6%). Men were more likely to have used crack than women (CDC, 1997). See Table #10 below.

Table #10 - Lifetime Crack Use by College Students

Lifetime Crack Use			
	Females	Males	Total *
Age: 18-24	1.3	1.9	1.6
>= 25	6.9	10.8	8.4
Race: White	3.4	4.9	4.0
Black	3.5	4.3	3.8
Hispanic	4.3	4.9	4.6

Source: Center for Disease Control and Prevention. Youth Risk Behavior Surveillance: National College Health Risk Behavior Survey. United States, 1997. MMWR 1995 46: 1-54.

The Core Institute releases recent statistics to universities on suggestions of how to better educate students not to do drugs. Its study (1998) suggests that 7% of

students surveyed reported using other methamphetamines or amphetamines within the last year, and 3.1% had used within the last month.

Gender, Age and Ethnicity Differences. According to the National College Health Risk Behavior Survey, approximately 14.4% of college students had used some form of cocaine during their lifetime (1998). Students that were 25 or older were significantly more likely to have used cocaine (28.1%) than students 18-24 (6.6%). It is encouraging that less than one percent (0.8%) of all college students had used some form of cocaine at least once during the 30 days preceding the survey (see Table #11 below).

Table #11 - Lifetime and Current Cocaine Use by College Students

	Lifetime			Current		
	Females	Males	Total *	Females	Males	Total *
Age: 18-24	6.5	6.7	6.6	.6	1.3	.9
>= 25	25.5	32.4	28.1	.3	1.0	.6
Race: White	15.7	16.4	16.0	.5	1.3	.8
Black	7.9	8.0	7.9	.2	.6	.4
Hispanic	15.7	16.4	15.9	.8	1.8	1.3

Source: Center for Disease Control and Prevention. Youth Risk Behavior Surveillance: National College Health Risk Behavior Survey. United States, 1997. MMWR 1995 46: 1-54.

The University of Florida reported its student's drug use for the 1999 year. One-tenth of the student population (according to estimates) is likely to use methamphetamines in the past year and 6.4% within the last month. Almost 4% of college students that participated in the survey claim to have used other stimulants such as ephedrine and diet pills in the past year while 3.2% of the students reported using within the past month. It was also found that amphetamine use increases in frequency from a student's freshmen to senior year. When examining ethnicity, American Indians (16.6%) were more likely to use stimulants than Hispanics (16.1%), Whites (13.3%), African Americans (3.0%) and Asians (1.5%). The

university also reported that men in the survey are more likely than women to use stimulants (15.4% to 9.3% respectively). Greeks (14.4%) on the University of Florida campus were also more likely to use stimulants than non-Greeks (12.7%).

Narcotics and Opiates

The word narcotic comes from the Greek word *narke* meaning "numbness." These narcotics are designed to alleviate pain and discomfort. The drugs that are listed in this category are either opiates; constituents or derivatives of opium or synthetic narcotics. Narcotic analgesics are highly addictive painkilling drugs that may also produce a euphoric effect. Some narcotics are natural drugs that come from the opium poppy, while others are synthetically produced in laboratories. Some, such as codeine, have become valuable in their medical uses. Because the abuse of opiates may result in serious psychological problems, these drugs are under the strictest of legal control (CDC, 1997).

Opium is derived directly from the seedpod of an Asian poppy or *Papaver Somniferum*. It can be described as dark brown chunks or powder. It can either be eaten or smoked. There is currently no medical use for unrefined opium (CDC, 1997). However, other narcotics such as Codeine do have some medical uses.

Codeine is a narcotic that is widely available as a tablet, capsule, suppository or solution. Like opiates, it is used primarily as a painkiller. Other narcotics like Methadone, Demerol (meperidine or pethidine), Dilaudid (hydromorphone), Hydrocordone, Percodan (oxycodone), Talwin (pentazocine) and Lomotil (diphenoxylate) have similar effects to codeine and opiate use (CDC, 1997).

When an opiate is injected, the user will feel surges of pleasure then a state of gratification. The body tends to feel warm and heavy. It may also cause restlessness, nausea and vomiting. Taken orally, the effects are felt more gradually. Other physical effects include insensitivity to pain, contraction of pupils, increased urination, constipation, sweating and slowed breathing. With very large doses a person's skin is cold, moist and bluish, a person's breathing may slow to almost a complete stop and may result in death.

Tolerance develops fairly rapidly, making higher doses necessary to maintain the intensity of the drug's effects. Most narcotics are highly addictive, and regular use results in severe physical dependence. Withdrawal symptoms include severe anxiety, insomnia, profuse sweating, muscle spasms, chills, shivering, tremors, and can occur four to five hours after last dose. Users will often respond to the pain of withdrawal by taking another dose, without realizing they have become addicted (CDC, 1989; CDC, 1997).

Chronic users may develop lung problems due to effects of narcotics on respiration. AIDS and other infections are often a secondary consequence due to un-sterile needles, resulting in further liver and brain damage (CDC, 1997).
Perhaps the most addictive narcotic is diacetylmorphine or heroin. Heroin is processed from morphine, a naturally occurring substance extracted from the seedpod of the Asian poppy plant. Heroin usually appears as a white or brown powder. Street names associated with heroin include "*H, smack, skag*" or "*junk*". Other names may refer to types of heroin produced in a specific geographical area, such as "*Mexican black tar*" (National Center for Health Statistics, 1996).

The short-term effects of heroin abuse appear soon after a single dose and disappear in a few hours. After an injection of heroin, the user reports feeling a surge of euphoric rush accompanied by a warm flushing of the skin, a dry mouth, and heavy extremities.

Long-term effects of heroin will appear after repeated use for some period of time. Chronic users may develop collapsed veins, infection of the heart lining and valves and liver disease or pulmonary complications. Heroin use is associated with serious health conditions, including fatal overdoses, spontaneous abortions, collapsed veins, and infectious diseases like HIV/AIDS and hepatitis (CDC, 1997).

Collegiate Use

The Monitoring the Future study (1999) reports that the use of Heroin and other opiates remain almost unchanged over the last 15 years. Less than 1% of students surveyed reported using a narcotic over the last month.

The Core Institute also studies narcotic use on a national level. Of the 89,874 college students, approximately 3.9% had reported using an opiate or narcotic within the last year, and 1.6% of students reported using a narcotic within the last 30 days prior to completing the Core survey.

The narcotic of choice on college campuses has become Codeine and Demerol. They are rarely reported because they are usually seen as prescription medicine to cure an injury or the common cold. However, according to a study at the University of Florida (1999), it may be that if those drugs could be measured in greater detail we could find substantially higher rates of narcotic use. It was found that narcotics are becoming the growing drug of choice at their university. Over 8.5%

of the students that were surveyed had used an opiate or heroin before. Approximately 3% of students reported using heroin and opiates over the last 30 days (see Table #12 below).

Table #12 – Narcotic Use of Collegiate Students at UFlorida

Narcotic Use at the University of Florida				
Substance	Never used	Used; not in the last 12 months	Used; but not in the past 30 days	Used in the past 30 days
Other_opiates	86.3	7.4	4.0	2.4
Heroin	97.9	1.1	0.3	0.7

Source: University of Florida (1999)

Gender, Age and Ethnicity Differences. The University of Florida also reported on the level of study, ethnicity, and sex differences. The researchers found little relationship between level of study or ethnicity and race. They did find that males (3.9%) were more likely to be users of narcotics within the past thirty days as compared to female (2.4%) students. There was also no relationship between those affiliated with Greek houses and those not affiliated with Greek houses (1999).

Hallucinogens and Synthetics

Hallucinogens are drugs that dramatically affect a person's perception, emotions and mental processes. These drugs distort the senses and can cause hallucinations; sensory images similar to dreams or nightmares. The term hallucinogen is derived from the Latin word *allucinari* meaning "to dream or to wander in the mind". Hallucinogens produce distortions of reality. Hallucinogens are sometimes called *"psychedelic drugs,"* and among users are commonly recognized as "mind-expanding" drugs. Hallucinogenic drugs are not currently accepted for any medical use. LSD and PCP are the most commonly used hallucinogens. Over the past

few years there has been a rebirth of synthetic club drugs like Ecstasy, Rohypnol and GHB, discussed later in the chapter (CDC, 1997).

LSD (lysergic acid diethylamide) is the most widely used hallucinogenic drug. LSD, is commonly referred to as "*acid,*" can be bought on the street in tablets, capsules or a liquid form. It is odorless, colorless, and has a slightly bitter taste and is usually taken by mouth (National Center for Health Statistics, 1996).

The effects of LSD are unpredictable. They depend on the quantity and quality taken and the person's personality, mood, and expectations. The euphoric sense first takes effect 30-90 minutes after taking it. The physical effects include an increased heart rate, sweating, loss of appetite, sleeplessness and tremors. Sensations and feelings change much more dramatically than the physical signs. The user may feel several different emotions at once or swing rapidly from one emotion to another. Users of LSD sometimes refer to their experience with LSD as a "*trip*" which typically lasts 12 hours. Many LSD users may experience flashbacks, recurrence of certain aspects of a person's experience, without the user having taken the drug again. A flashback occurs suddenly, often without warning, and may occur within a few days or more than a year after LSD use. Flashbacks usually occur in people who use hallucinogens chronically or have an underlying personality problem (National Center for Health Statistics, 1996).

PCP or phencyclidine is illegally manufactured in laboratories and is sold on the street as "*angel dust, ozone*" or "*wack.*" PCP can also be combined with marijuana and sold as "*killer joints.*" PCP is a white crystalline powder that is readily soluble in water or alcohol. It can be mixed easily with dyes and turns up on the illicit

drug market in a variety of tablets, capsules, and colored powders. It is normally used in one of three ways: snorted, smoked, or eaten (National Center for Health Statistics, 1996).

PCP is very addictive. It often leads to a psychological dependence, craving, and compulsion. Some persist in using PCP because of its feelings of power, strength and invulnerability. At low to moderate doses physiological effects of PCP include a slight increase in breathing rate and psychological effects similar to those associated with alcohol intoxication. At high doses of PCP there is a possibility of nausea, vomiting, blurred vision, drooling, the loss of balance, and dizziness. High doses of PCP can also cause seizures, coma, and death. Long-term PCP use can cause effects similar to schizophrenia, delusions and paranoia (CDC 1997).

Club Drugs like Ecstasy, Herbal Ecstasy, Rohypnol and GHB are among the drugs used by teens and young adults who are part of a nightclub, bar, rave, or trance scene. Those attracted to hallucinogens are generally attracted to the low cost, seemingly increased stamina, and intoxicating highs that are said to deepen the rave or trance experience.

Many users tend to experiment with a variety of club drugs in combination. Also, combinations of any of these drugs with alcohol can lead to unexpected adverse reactions and possibly death. Rohypnol and GHB are predominantly central nervous system depressants. Because they are often colorless, tasteless, and odorless, they can be easily added to beverages and ingested unknowingly. These drugs have emerged as the so-called "*date rape*" drugs. Rohypnol ("*Roofies*") is not approved for use in the United States and its importation is banned. GHB (gamma hydroxy-butyrate) has

been abused in the U.S. for euphoric, sedative, and anabolic effects that aids in fat reduction and muscle building. MDMA, commonly known as "*Ecstasy*" or "*XTC*" on the street, is a synthetic, mind-altering drug with amphetamine-like and hallucinogenic properties (National Center for Health Statistics, 1996).

Confusion, depression, sleep problems, drug craving, severe anxiety, and paranoia may occur during and sometimes weeks after taking any of these hallucinogens. Physical symptoms include muscle tension, nausea, blurred vision, faintness, chills and sweating. Recent research has linked MDMA use to long-term damage to those parts of the brain critical to thought and memory. In monkeys, exposure to MDMA for four days caused significant brain damage that was still evident six to seven years later. This study provides further evidence that people who take MDMA may be risking permanent brain damage (CDC, 1997).

Collegiate Use

The United States Department of Education's Fund for the Improvement of Post-Secondary Education (FIPSE) did a 1989 national study of 78 colleges. Their report specifies that approximately 5% of college students reported using hallucinogens during the last year.

Surveys and other research done at smaller universities suggest the same as the larger national studies. However, it should be noted that each university is different – in its atmosphere, location and student body. A larger university in the Southern U.S. has reported that 6% of their students have used LSD (in the past year) while another university in close proximity reports that 5% of their students had used LSD in the last year (Clifford et al. 1987; Globetti et al. 1992).

During the same time period, the University of Wisconsin at Madison reported that 6% of their freshmen students and 20% of seniors have used a hallucinogen in the last year (MacDonald, Barry, Fleming, 1992).

The University of Florida (1999) found that 11.9% of its students had used a hallucinogen before. Approximately 6% - 9% of students reported using within the last year and 1% - 4% had used within the last month. The university could not find statistical significance between the frequency of use and a student's gender, level of study, ethnicity, or their involvement at a Greek house.

The Monitoring The Future study (1999) revealed that hallucinogen and LSD use has been on the increase since the early 1980s. In 1983, 1.8% of those surveyed had used a hallucinogen within the last month. This has increased modestly to 2.1% in 1998. LSD has also continued to fluxuate and rise from 0.9% in 1983 to 1.5% in 1998.

Gender, Age and Ethnicity Differences. The National College Health Risk Behavior Survey has reported that 20.5% of college students reported use of other illegal drugs like LSD, PCP, hallucinogens, and some of the newer club drugs. Students that are 25 and older (28.5%) were significantly more likely than students 18-24 years (16.1%) to have ever used these drugs. White students (34%) were significantly more likely than Hispanic (14.7%) and Black (5.9%) students to report hallucinogen and synthetic use. White males and females fit the profile of the most likely to use when the researchers cross-matched ethnicity with sex and frequency of use (see Table #13 below).

Table #13 - Lifetime and Current Hallucinogen Use by College Students

	Lifetime			Current		
	Females	Males	Total *	Females	Males	Total *
Age: 18-24	14.7	17.6	16.1	2.2	4.6	3.4
>= 25	24.9	34.3	28.5	0.6	1.4	1.9
Race: White	22.2	26.5	34.0	1.8	3.7	2.6
Black	4.5	8.1	5.9	0.1	1.8	0.8
Hispanic	14.1	15.6	14.7	2.1	2.5	2.3

Source: Center for Disease Control and Prevention. Youth Risk Behavior Surveillance: National College Health Risk Behavior Survey. United States, 1997. MMWR 1995 46: 1-54.

Nationwide, approximately 2.4% of college students reported using LSD, PCP, hallucinogens, or some of the newer club drugs 30 days prior to the administering of the survey. Students aged 18-24 years (3.4%) were significantly more likely than students aged greater than or equal to 25 years (1.9%) to report current hallucinogen use. Male students (4.6%) were significantly more likely to use a hallucinogen than female students (2.2%). White (2.6%) and Hispanic (2.3%) students were also more likely than Black (0.8%) students to report current usage (CDC, 1997).

A great deal of research has been done at the national level, but many universities still do not survey their students. Universities that are well known for surveying the frequency of drug use, often are using the same survey instrument. These survey instruments are very good but lack a theoretical component. The self-administered survey that is utilized in this study is somewhat different and may better explain the frequency of collegiate drug use through an evaluation of the applicability of Hirschi's social control theory.

CHAPTER III

THEORETICAL ORIENTATION

This chapter examines Hirschi's social control theory including its inception and development and empirical testing. The author will later use Hirschi's social control theory to explain and, or predict collegiate substance use.

Social Control Theory

Social control theory has become popular with conservative sociologists and criminologists. The term "control theory" refers to any perspective that discusses the control of human behavior (Empey, 1978). All social control theories attribute crime, delinquency or deviance to sociological variables such as the family, education, social institutions, friends, peer groups and acquaintances. These theories are based on a series of assumptions about human nature and social order, which most 20th century theorists had earlier discarded. However, social control theory rebounded in the 1960s (Empey and Stafford, 1991) and today is among the leading theoretical explanations of juvenile delinquency in the United States (Akers, 1994). Stitt and Giacopassi (1992) report that social control theory is the most frequently discussed and tested of all the theories in criminology. In a recent review of juvenile delinquency studies, Edwards (1993) also found that social control theory was utilized in 75% of the cases.

Social control theorists have a different outlook than other theorists. Instead of asking the question, "What makes people criminal?" control theorists ask, "Why do

people obey the rules and norms of society?" (Hirschi, 1969), or why do people not commit delinquent acts?

> *To violate a norm is ... to act contrary to the wishes and expectations of other people. If a person does not care about the wishes and expectations of other people – that is, if he is insensitive to the opinion of others – then he is to that extent not bound by the norms. He is free to deviate. (Hirschi, 1969:18)*

Inception and Development

Hirschi's work elaborates on the work of Emile Durkheim in which Durkheim had suggested that "the more weakened the groups to which the individual belongs, the less he depends on them, the more he consequently depends only on himself and recognizes no rules of conduct than what are founded on his private interests" (Durkheim, 1951:209). "We are all moral beings to the extent that we are social beings" (Durkheim, 1951:210). Hirschi, following from Durkheim, believes that behavior reflects varying degrees of morality. Hirschi claimed that society serves as a restraint on individual behavior. If these restraints are loosened, the self-interested person will not conform to the norms and values of society. This person is then "free" to engage in delinquent behavior (Williams III and McShane, 1994). People are bound to society not only by what they have (or might lose) but also by what they hope to obtain (Junger and Marshall, 1997). It is the conventional society that governs the perspective from which behavior is to be viewed (Williams III and McShane, 1994).

Following from the early tradition of social control theory, Hirschi did not set out to explain why juveniles violated the law, but rather sought to explain why some do not, in contrast to strain theories. Hirschi suggested that strain theories depict a delinquent as a typically lower class gang member forced into delinquency due to the

realization of underachievement of common societal goals. Hirschi also rebuked cultural transmission theorists. Their standard picture was the "innocent foreigner" who, in a failed attempt to understand or obey the norms or rules of the larger society, turns to the deviant subgroup for more likeable norms (Bynum and Thompson, 1985).

Within social control theory, Hirschi (1969) suggests that the social bonds of society have four distinct elements; attachment, involvement, commitment and belief. Every person has a bond to society. However, the degree of bonding for each person is different. This leads control theorists to ask how much these bonds need to be weakened before a person performs a deviant act (Hirschi, 1969).

Attachment

Attachment is the first dimension or element of social control theory according to Hirschi. Attachment is the most basic of the elements necessary to prevent delinquent acts. It is the strength and durability of the attachment to one's significant others. This may include parents, guardians, friends, or spouses. It also includes the attachment to an institution such as school, university, or workplace. It can also influence the affection for and or sensitivity to others. If children are strongly attached to their parents they are more likely to internalize the norms of their parents. Therefore, if the parents had internalized society's norms and values their children would be likely to also do so (Empey and Stafford, 1991). The stronger the attachment to significant others and, or institutions, the greater the likelihood that a person will be inhibited from deviant acts.

Involvement

The second element, involvement, is the degree of time a person commits to activities, either conventional or deviant. This includes a job in the workplace, hobbies, recreational activities, sports or volunteer work. For instance, if a student is learning full time at a university and continuing to work at a job, he/ she would have less time to commit any deviant acts. Therefore, the more conventional activities a person is involved in the less likely he/ she will engage in delinquent acts. This element of Hirschi's social bonding theory suggests that it is an issue of behavior, in that the more time someone devotes to a conventional (socially acceptable) activity, the less likely they will devote time to a deviant activity. This element is based upon the old principle that "idle hands are the devil's workshop" (Vold, Bernard, Snipes, 1998).

Commitment

Commitment, the third element, is the investment a person puts into an institution or a significant other. This built up investment could reflect a person's commitment to his/ her university education, career, a business venture, or good standing within their community. A person deeply committed (as an emotional attachment rather than a behavioral attachment) to society's norms would not want to risk his/ her built up investment (their job or education) to perform a delinquent act in which the investment is reduced. Commitment is more of an ideal rather than a behavioral issue. Therefore, a person who holds society's expectations and aspirations would be less likely to commit a deviant act. A person's "stake in conformity" is

essential to whether or not the person will commit a deviant act (Vold, Bernard and Snipes, 1998).

Belief

Belief, the final dimension, is one's understanding or judgment that society is fair and the rules and norms of our communities are for the well being of all. This element represents a legitimacy of society and its rules and whether a person will conform to those rules. If that legitimacy is weakened, the theory states that we are more likely to commit a deviant act.

If any of the four elements of Hirschi's social control theory are weakened, we can expect an increased likelihood that a person will engage in deviant behavior.

Testing and Previous Research

Hirschi tested his theory using a self-report survey questionnaire of 4,000 junior and senior high school students in the San Francisco Bay area. He tested his attachment, commitment, involvement and belief variables with acts of delinquency using official police data and school records. Hirschi found that, regardless of race or class, and regardless of the delinquency of their friends, boys who were more closely attached to their parents were less likely to report committing deviant acts (1969:97-99). Hirschi also found that students who had poor grades, disliked school and disregarded school policy reported more delinquent acts. His strongest correlation was found between reported delinquent activities and agreement with the statement "It is alright to get around the law if you can get away with it" (1969: 202-203). These findings were consistent with his control theory. Hirschi concluded that "the

higher the [legitimate] aspiration, the lower the rate of delinquency, regardless of the student's expectation" (1969:183).

Hirschi's social control theory has been retested, replicated and challenged time and time again. Studies do seem to suggest that Hirschi was correct in his findings. Associations between indicators of attachment, commitment, involvement and belief with delinquency have tended to be positive and significant (Siegel, 1995:219).

Previous research on the effect of the school bond on delinquency examined general misbehavior (Gibbons 1981; Hagan, Simpson 1978; Hindelang 1973; Krohn, Massey 1980; Liska, Reed 1985; Torstensson 1990; Thornbury et al. 1991). Although a great deal of research has been done with social control theory and high school delinquency, the use of social control theory has not been tested at the collegiate level.

Hirschi's social control theory has also been verified through a great deal of empirical research (Hindelay, 1973; Johnson, 1979; Agnew, 1985; Cernkovich and Giordano, 1992; Rankin and Kern, 1994). However, high correlations and high levels of explained variance have seldom been found in the literature. The relationships found in most of the research have been modest and favorable, not overwhelming.

Limitations of the Theory

Hirschi found that the association of delinquent friends might better explain delinquency, a finding not anticipated in his empirical testing of the theory. Later research has found that attachment to peers leads to conformity only when the peers are themselves conventional. Therefore, it has been found that those who are strongly

attached to delinquent friends are themselves more likely to be delinquent (Linden and Hackler, 1973; Conger, 1976; Elliott et al. 1985; Junger-Tas, 1992).

Krohn and Massey (1980) found that social bonding variables are moderately related to delinquent behavior but more towards minor rather than serious delinquency. However, the magnitude of the relationships between social bonding and deviant behavior has ranged from moderate to low. While most of the findings support Hirschi's theory, the relationships are fairly modest.

Since Hirschi's original work on social control theory, Hirschi has done more research, collaborating with Michael Gottfredson to propose a theory of crime based upon self- control. The theory states that individuals with an increased self-control will be "substantially less likely (at all periods of life) to engage in criminal acts (Gottfredson and Hirschi, 1990:89). Ronald Akers has suggested that social control theory may be subsumed under the concept of self-control. Akers argues that social control theory is an indicator of self-control theory (as internal controls). However, self-control theory has unresolved problems of empirical validity because not enough research has been conducted to verify its predictive power on delinquency (Akers, 1997).

Hypothesis

I expect to find that there is a moderate relationship between collegiate drug use and Hirschi's social control theory. Students in college are likely to be in a transitional period where a student has gone from an environment where control is more formal and direct to a less controlling environment. Therefore, direct controls in Hirschi's original work should have less effect. However, there is a strong likelihood

that college students will have internalized the values and norms they were taught (by parents or others).

Problem Statement

Can parental attachment, commitment to education, involvement in extracurricular activities and belief in rules explain or predict a college student's frequency of drug use at the University of North Dakota?

Other Research Questions

Is there a significant difference between gender and a student's frequency of substance use? Is there a significant difference between a student's ethnicity and frequency of substance use? Is there a significant difference between age and a student's frequency of substance use? Will a student's level of study have any predictive power on a student's frequency of substance use? Will a student's living arrangement (whether they live alone, with one parent or two parents) have an effect on a student's frequency of drug use? Is a student's involvement with a Greek fraternity or sorority an indicator of a student's frequency of drug use? Will a student's income have any predictive effect on a student's frequency of substance use? Will the number of days a student goes out each week have an effect on a student's frequency of drug use? Will the absence of a drug education class have an effect on the frequency of drug use?

CHAPTER IV

METHODOLOGY

This study uses both a purposive and non-probability sample of collegiate students at the University of North Dakota. The purposive sample selects sampling units subjectively in an attempt to obtain a sample representative of the population (Frankfort-Nachmias and Nachmias, 1996). Three focus groups were initially employed to better define the variables and response sets for the survey. The first and second focus groups consisted of undergraduate students. The third focus group was more informal and consisted of graduate students and an instructor at the university. After the completion of the focus groups, a quantitative, closed-ended question, self-administered survey was constructed and administered to undergraduate and graduate students enrolled in philosophy, sociology, and criminal justice courses at the university. These courses attract a broad distribution from across the campus and as such produce a representative sample of the student body.

This chapter addresses the methods used to gather data for this study. Discussions include procedures used with all three focus groups, issues of validity and reliability, the procedures and methods used to administer the self-survey, ethical issues, and limitations of the study.

Time Frame

This study first began with a focus group in December of 1999, a follow-up focus group in January of 2000 and finally a third focus group in March of 2000. The

up focus group in January of 2000 and finally a third focus group in March of 2000. The discussions of the focus groups led to the testing of the survey questions and responses during the first week of April (see Table #14 below).

Table # 14 – Research Time Frame

	----------1999----------				----------2000----------			
	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
Develop Design		------						
Design Questionnaire			-------					
Focus Group 1				-------				
Focus Group 2					----------			
Focus Group 3						----------		
Administer Survey							------	
Analyze Data							----------	

Research Design

A research design is a blueprint enabling the researcher to come up with solutions to the problems that guides him/ her through their research. Three focus groups were first organized to better define the items and response sets within the questionnaire and to evaluate the questionnaire for a property-disposition relationship (a relationship between the qualities of a person and their corresponding attitudes) and the operationalization of the questions used in the survey. The survey itself employed a cross- sectional design, which is the most commonly used method in survey research. Seventeen classes were randomly selected for the administration of the survey within the Sociology, Criminal Justice and Philosophy departments at UND. Each of the students enrolled in these classes was asked to participate in the study, but it was emphasized that participation was voluntary.

Variables

The dependent variables of interest to the study are the frequency, accessibility, and contact of substance use of collegiate students. The independent variables will test Hirschi's social control theory through measures of student attachment to their (non-deviant) parents, friends and peers, commitment to (conventional) education and other social institutions, involvement in their community, and the belief that society's rules be recognized. In addition, the respondent's demographics (age, gender, marital status, ethnicity, level of study, living arrangements, income, amount of fun, and involvement in drug education) are included as control variables.

An underlying assumption of this study is that belief systems of people will have determined their morality and decision-making. Therefore, more responsible people will follow the "rules" or norms of society. Each person can make a rational choice (a result of free will) that will result in either the use of a substance or non-use. Another intervening variable may be the social and legal consequences of their actions.

Sample Size

The sample size of 699 students is approximately 7% of the student body population. The combination of the large sample size and selection of classes surveyed qualifies as a reliable, valid, and generalizable sample of the entire student body at UND. From the university guide of classes offered each semester, the researcher randomly chose philosophy, sociology and criminal justice classes because of their easy accessibility and broad student enrollment. Four large introductory level

classes were used to test freshmen and sophomore students. Twelve upper level classes were used to determine the junior and senior student's behavior. One graduate class was also included in the sample. In an attempt to increase the number of graduate students, another 22 masters and doctoral students (in sociology and education) volunteered to take the survey.

Survey Design

The study utilized a non-probability sample (as defined by Frankfort-Nachmias and Nachmias, 1996), thereby specifying that there are no assurances that each student has the same probability of being included in the sample. The researcher chose to do a purposive survey (also called judgment sample) selecting sampling units (or classes) subjectively in an attempt to obtain a sample size representative of the population at UND.

Primary data collection and analysis were chosen for several reasons. First, there have been very few studies done at the University of North Dakota on collegiate substance use thereby limiting the viability of secondary data analysis. Too often secondary data analysis employs variables or questions as proxies for concepts without recognizing construct validity issues (Weisberg, Krosnick, Bowen, 1989). Third, there have been no studies done to examine whether or not Hirschi's social control theory can be applied to measure the level of deviant substance behavior in university students.

Questionnaire Construction

The instrument was developed and then tested with help from the participants of the three focus groups.

The questionnaire (Appendix A) employed closed-ended questions with the response set of each question less than five, measuring demographics (gender, marital status, age, education and income), subject attitudes and behaviors about drug use, and questions that are designed to produce responses measuring theoretical variables.

The measurement of operational variables (a procedure in which this researcher assigned numerical numbers to empirical properties according to designated rules for four levels of measurement: nominal, ordinal, interval and levels of relations, or ratio) bridges the conceptual variables of collegiate substance use to Hirschi's social control theory.

Focus Groups

The focus groups were initially used to evaluate the validity and reliability of the test instrument. Each group was established with seven to ten participants that had some of the same characteristics as the sample population to be surveyed. The focus group creates a permissive environment that nurtures different perceptions and points of view without pressuring participants to vote, plan, or reach consensus" (Krueger, 1988), in order to provide clues and insights instrumental to how a product, service or opportunity is perceived (Krueger, 1988).

These focus groups were held to provide insight on better defining and operationalizing variables, questions and response sets. Each group began with the introduction and consent of each of the participants. The author conducted the first two groups by explaining the survey and the questions of theoretical interest. The third focus group was given different instructions dealing with the research design of the study. In each group, participants were asked to work with another person on a

number of questions they would like to ask, should be addressed, or could be changed within the questionnaire. After ten to fifteen minutes each sub-group gave its opinions and the entire group then discussed these opinions. After all of the opinions were explained and discussion had been completed, the author addressed what changes were going to be made, how the changes would be made and what he had learned from their participation. Each participant was then thanked for their assistance and the sessions were concluded.

Focus Group 1

The first focus group was held in December of 1999. A draft of the survey was almost complete and the primary purpose of the group was to address the use of language and wording of the questionnaire. There were eight participants in the group, each of who were friends of the researcher. After five to ten minutes, each participant was given time to discuss what he or she had found most interesting about the questionnaire, how to better word the questions, the variability of responses and any possible bias. The time duration for the first focus group was approximately one hour. Questions asked of the participants are included in Appendix C. This first focus group was intended to be a pre-test on a sample of appropriate respondents.

Focus Group 2

The second focus group was held in February of 2000. There were eight participants in this group. Participants were asked to break into groups of two and give their opinions on eight to ten questions of the survey. After fifteen minutes, each participant was given the opportunity to discuss what he/ she had found most interesting. The duration of this focus group also lasted about one hour. Instructions

given to this group were similar to the first. The questionnaire had been changed and revised on the basis of the first group and the researcher wanted to test the new questions. There was more in-depth discussion over the response sets of the questionnaire than the wording or organization of the questions.

Focus Group 3

The third focus group was held in March of 2000. A UND instructor was present and seven graduate students participated as members. Discussion addressed the research design and data analysis of the study. The questionnaire was briefly discussed but no changes were made after the group met. The discussion of the design of the study was greeted with good opinions and after weighing some of the costs and benefits, the researcher concluded the focus group. This focus group lasted only 20 minutes.

As previously indicated, the focus groups were employed to increase the reliability of the survey and the minimization of variable errors in the survey. These errors may produce inconsistencies from observation to observation during any one-measurement attempt (Frankfort-Nachmias and Nachmias, 1996). The focus groups dealt with misread questions in order to reduce variable errors, honesty in responses, reducing any wording errors in the survey, the instructions given to each class, and the numbers of students able to participate (that in the case of a student being in two of the classes surveyed, their second survey would be null/ void). The author also used the focus groups to ensure that variables were properly operationalized and that concepts and responses were well understood.

The researcher first wanted the self-administered survey to be a good indicator of substance use in college students. Therefore, response sets were changed for increased variability in responses addressing face and content validity. Content validity refers to the degree to which a measure covers the range of meanings included within the concept (Babbie, 1995). To address construct validity (the logical relationship between theory and substantive variables), the researcher operationalized Hirschi's four concepts of bonding to society from other surveys involving delinquent youth. These questions needed to be modified to address deviant behavior in college students rather than delinquency in adolescents. To measure empirical validity, (the relationship between a measuring instrument and its outcome), each focus group participant was asked how results should be tabulated and what analysis could be utilized. Many of the participants in the focus groups agreed that the operationalized questions using social control theory could predict correlations or relationships.

Ethical Responsibilities

There are many ethical responsibilities associated with this study. Due to the nature of the study, it was necessary that the Internal Review Board (IRB) at the University of North Dakota review the study, its design and the risks associated with performing this study and gathering research. Anonymity, confidentiality, voluntarism, competence and informed consent are all very important factors when a researcher intends to do research on college students. The questions pertained to a student's drug use, educational and occupational experiences, their attachment, involvement and commitment to those around them and the institutions in which they learn.

Abiding by IRB requirements, no participants will be identified, and the answers they gave have been numerically scored. There is no way to trace any one person's responses. There are no associations of the name of any subject with the data set that has been compiled. The identity of the participant is confidential because no IBM sheets were accepted if the name appeared anywhere on the response sheet. The scores would be aggregated in to larger group statistics. When the data was collected, it was transferred to a (computer) data set and each response was recorded numerically. In addition, the survey was administered within classrooms at UND. To put students at ease, professors were also asked not to come into close contact with any student, respecting the student's privacy. Students were not asked to forfeit any personal rights.

Voluntarism is when each person involved in the research has legal capacity to give consent without force, fraud, deceit, or without full information. According to Frankfort-Nachmias and Nachmias (1996), there are six elements of being informed: fair explanation of the procedures and purposes of the study, description of the risks involved, description of any benefits that may be expected, disclosure of appropriate alternative procedures, to answer any inquiries of the procedure, and an instruction that each subject is free to withdraw consent or discontinue at any time without any prejudice. In this study, any students who do not participate in the study were not alienated in any shape or form. The subjects that did not want to participate were kindly asked whether they wanted to read quietly, review the survey itself without giving their opinion, or leave the classroom.

Competence is a belief that collegiate students can make responsible mature individual decisions. Each student at UND is at the age where they can identify whether or not they will want to participate in the study or withdraw from it without consequence. It is also expected that each student is capable of giving consent. Those under the age of eighteen that do participate are not included in the statistics.

After the data was coded numerically, the IBM sheets (with individual responses) were locked in a university filing cabinet in the Social Sciences Research Institute (SSRI) office. The data set of this study will be available at the sociology department upon request. Any student(s) may use the data (with permission) and learn from it as the researcher has.

Collection of Data

The data was collected in regularly scheduled classes during the spring semester (April 3-6) of 2000. The instructors were supportive that the researcher could administer the survey in that class period that varied from 60 to 90 minutes in length. The average data collection time per class was less than twenty minutes. After the data was collected, the IBM sheets were sent to the UND computer center where they were simply coded numerically into an ASCII file.

The researcher began coding the variables, inserting the data, developed a codebook (or coding scheme for each of the variables) and translated the raw data to easier to read statistical output that was used for analysis. Each variable name, question number, and the values of each variable can be seen in the appendix. Finally, the researcher edited and cleaned and proofread the data to ensure that no errors had occurred during the numerical transfer.

Data Analysis

The data was analyzed using the Statistical Package for the Social Sciences (SPSS). The frequencies and analysis can be found in the following chapter. The author used SPSS for all linear and logistical regression analysis.

CHAPTER V

RESULTS

This chapter presents the analysis of the data obtained in both descriptive frequencies and a more detailed multivariate analysis.

Demographics and Descriptive Statistics

The variables below were used as independent variables for both linear and logistical regression. The responses and basic frequencies are below. If there are any questions of numerical coding for each variable, the codebook can be seen in Appendix D.

Gender

In the sample of 699 students, males accounted for 44.6% and females 55.4% of the survey responses. As compared to the University of North Dakota's student body, females were slightly over-sampled. UND records reveal that 49.9% of students are female and 50.1% of students are male. This is almost an equal distribution (see Table #15 below).

Table #15 – Gender Comparison

Gender	Study(n)	Study(%)	UND(n)	UND(%)
Men	387	44.6	5,208	50.1
Women	312	55.4	5,184	49.9

Registrar's Office, University of North Dakota, 2000

Marital Status

For the purpose of theory testing, a sample of single students would be more desirable to measure the effects of parental attachment. Of the 699 students sampled, 647 students, approximately 93%, reported that they were single and only 52 (7.4%) reported that they were married at the time, providing some variability in this measure.

This statistic is nearly identical to UND's records that 92.3% of students were single and 7.7% reported being married (see Table #16 below).

Table #16 – Marital Status Comparison

Marital Status	Study (n)	Study (%)	UND (n)	UND (%)
Single	647	93.0	9,595	92.3
Married	52	7.4	797	7.7

Registrar's Office, University of North Dakota, 2000

Age Distribution

Three subjects were under the age of 18 (.4%), 187 were either 18 or 19 (26.8%), 249 either 20 or 21(35.6%), 184 were 22, 23 or 24 (26.3%), and 76 students were 25 years of age or older (10.9%).

University records indicate that 0.3% of students are under 18, 24.5% of students are 18-19, 26.7% of students are between 20 and 21, 22% are between 22 and 24, and approximately 26.4% are over the age of 25 (see Table #17 for comparisons). Thus the sample is slightly overrepresented in the 18-24 age caregories.

Table #17 - Age Distribution Comparisons

Age	Study (n)	Study (%)	UND (n)	UND (%)
Under 18	3	0.4	32	0.3
18-19	187	26.8	2,544	24.5
20-21	249	35.6	2,776	26.7
22-24	184	26.3	2,281	22.0
>= 25	76	10.9	2,759	26.5

Registrar's Office, University of North Dakota, 2000

Level of Study

The distribution of the student's level of education, an indicator of association with independent ideas and values from those of their parents was also balanced. Freshman constituted 18.9% (132) of the students surveyed. Sophomores and juniors consisted of 25.6% (179) and 22.7% (159) respectively, and 28.6% (200) were seniors. There were also 4.1% (29) graduate students among the sample surveyed.

According to the UND registrar's office, undergraduate students account for 81.7% of the student body and the remaining students are either graduate or special students. Freshmen consist of 19.6%, Sophomores 20.5%, Juniors 17%, and Seniors represent 24.6% of the undergraduate students. For comparisons see the Table below.

Table #18 - Level of Study Comparison

Level of Study	Study (n)	Study (%)	UND (n)	UND (%)
Freshmen	132	18.9	2,034	19.6
Sophomore	179	25.6	2,138	20.5
Junior	159	22.7	1,766	17.0
Senior	200	28.6	2,561	24.6
Graduate students	29	4.1	1,893	26.4

Registrar's Office, University of North Dakota, 2000

Ethnicity Distribution

One of the limitations of a representative sample of students for this survey is the largely white population at the University of North Dakota. Approximately 93% or 647 of the students who were administered the survey were white. Twenty students (2.9%) were American Indian, eight (1.1%) were Black, nine (1.3%) were Hispanic and thirteen other students (1.9%) considered themselves none of the above.

These statistics are clearly similar to those of UND's student population. American Indians account for 3.2%, Black students 0.9%, Hispanics 1%, Whites 88% and those reported other were 6.9%. See Table #19 below.

Table #19 – Ethnicity Comparisons

Ethnicity	Study (n)	Study (%)	UND (n)	UND (%)
American Indian	20	2.9	331	3.2
Black	8	1.1	93	0.9
Hispanic	9	1.1	102	1.0
White	647	93.0	9,142	88.0
Other	13	1.9	724	6.9

Registrar's Office, University of North Dakota, 2000

Where a Student Grew Up

Of the students surveyed, a large number had "grown up" in smaller, rural communities. Thirty-nine percent (272) were from towns of less than 10,000 people and 21.6% (151) had "grown up" in communities between 10,000 and 50,000 people. Nearly 27% (189) of students grew up in cities between the populations of 50,000 to 100,000, while 12.3% (86) of students had "grown up" in cities over 100,000 people (see Table #20).

Table #20 – Where a Student Grew Up

Where a Student Grew Up	Study (n)	Study (%)
Less 10,000 pop.	272	39.0
10,000 – 50,000	151	21.6
50,000 – 100,000	189	27.0
Over 100,000 pop.	86	12.3

Hirschi's theory suggests that people from smaller towns are more likely to be closer with their parents, peers, neighbors and their institutions like schools and churches.

Student Residence

As seen in Table 21, approximately 15% of students reported living with one or more parents or guardians, 14.4% lived alone, 7.4% lived with a spouse, 1% lived with their children, while 62% roomed with friends or roommates.

Table #21 – Student Residence

Student_Residence	Study (n)	Study (%)
Live alone	101	14.4
2 parents/ guardians	78	11.2
1 parent/ guardian	26	3.7
Roommates/ friends	435	62.2
With spouse	52	7.4
With a child(ren)	7	1.0

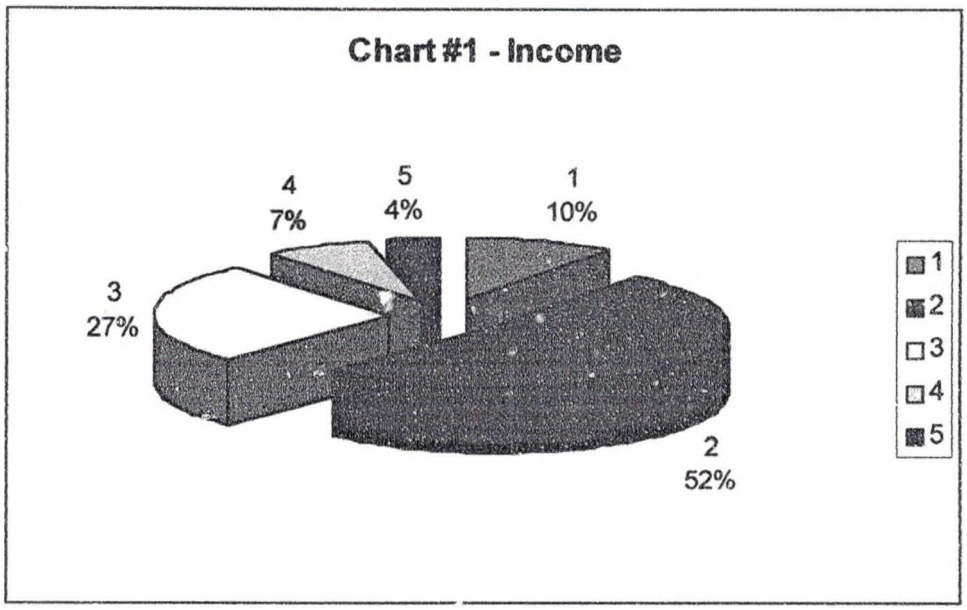
The denotation in parentheses explains (i) the number of each chart and (ii) the label of the value within each chart ([chart] [number of the chart] – [label or value of the chart]).

Income

Income was found to be a significant factor that was analyzed from the survey data. It could be expected that the more money that a student can earn or receive (through student loans, government funding, family allowance, employment or

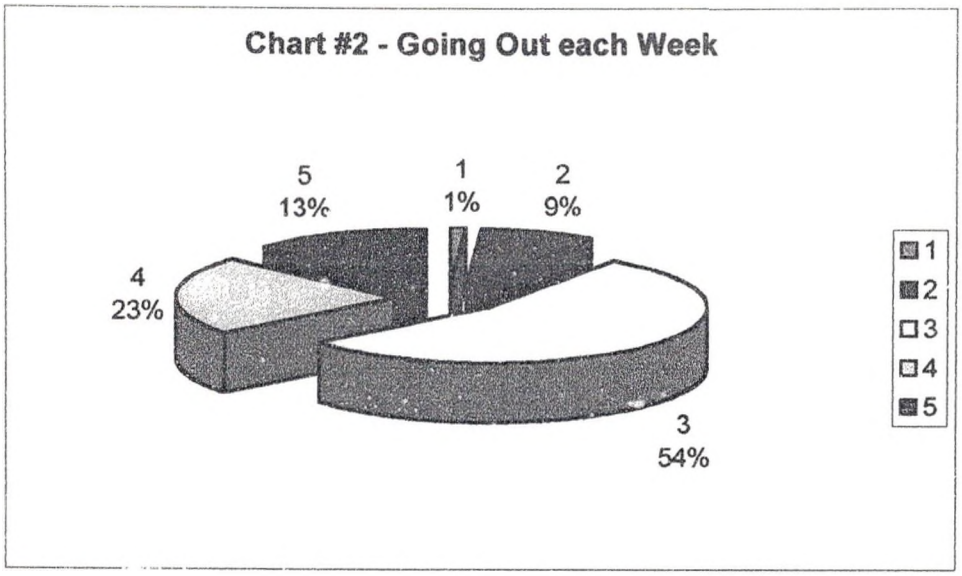
stipends, the higher the probability they could afford to consume drugs (either legal or illegal).

It was found that a large majority (C1-2) of students have less than $100 spending money per week. Approximately 10% (C1-1) have less than $100 spending money each week, 27% (C1-3) of students can spend between $101 and $200, 7.4% (C1-4) can spend between $201 and $300, and almost 4% (C1-5) have $300 or more dollars to spend each week!



Going Out each Week

Students were asked how many times they go out in the average week (during school months). Approximately 1% (C2-1) of respondents had reported going out less than once a week. Almost 9% (C2-2) of students go out between four to seven days per week. Over 54% (C2-3) of students reported that they go out between one to three days per week. Nearly 23% (C2-4) reported going out once a week, while 13% (C2-5) of respondents rarely go out at all.



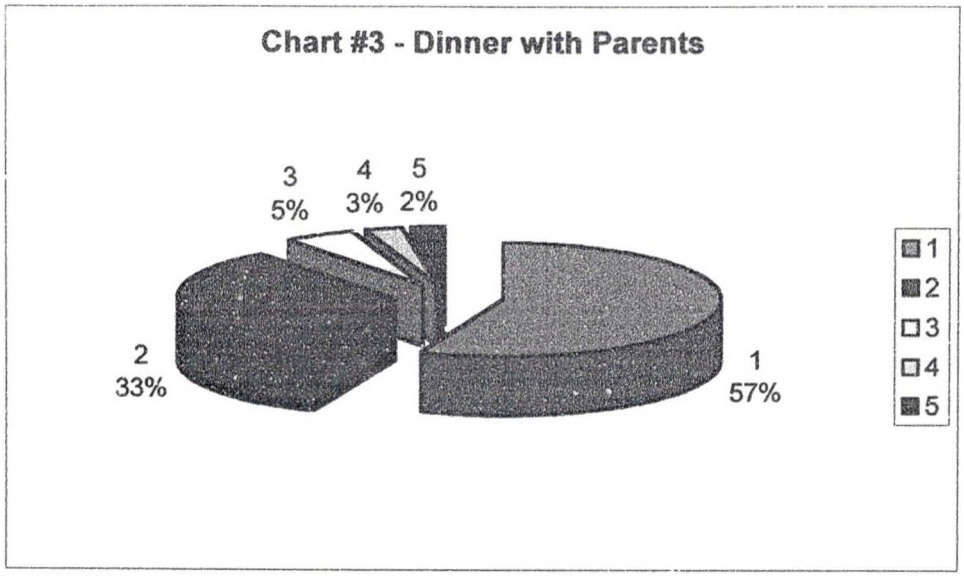
The variables of parental importance, commitment to education, involvement in activities and a belief in society's rules (conviction) were all used as independent variables to predict substance use (the dependent variable model).

Parental Involvement

There were several different variables that were used to compute a Hirschi's concept of parental involvement.

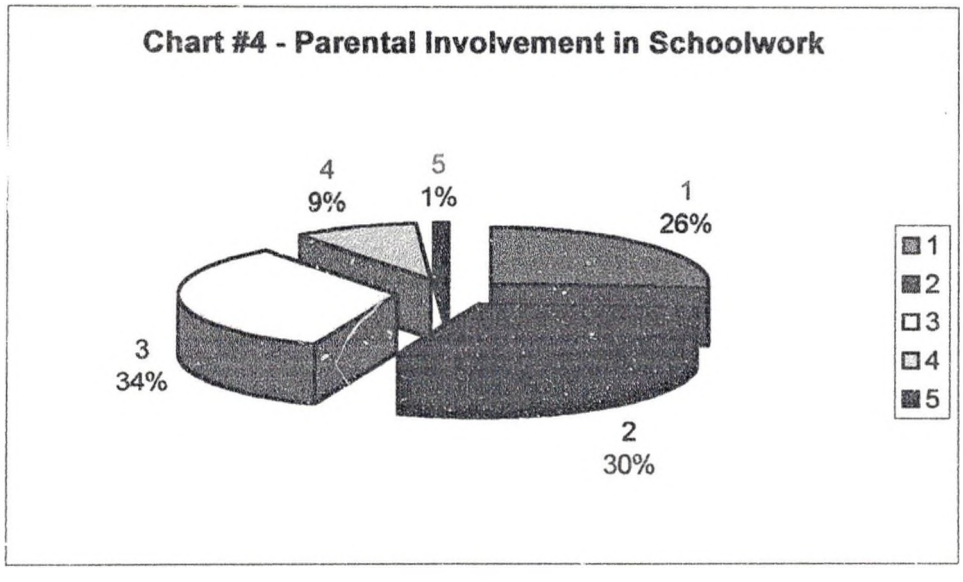
Dinner with Parents

The simple frequency of students that eat dinner with their parents, is a measure of Hirschi's bond of attachment, indicating that 57% (C3-1) never eat dinner with their parents. This is certainly a function of geographic distance or different time schedules. These students are transitioning to higher levels of autonomy and independence. Nearly 33% of students (C3-2) said they had dinner with their parents between one to three days in the average week. Approximately five percent (C3-3) of students ate with their parents 4-5 days per week, 3% (C3-4) ate with their parents six days per week and just 2% (C3-5) ate dinner with their parents seven days a week.



Parental Involvement in Schoolwork

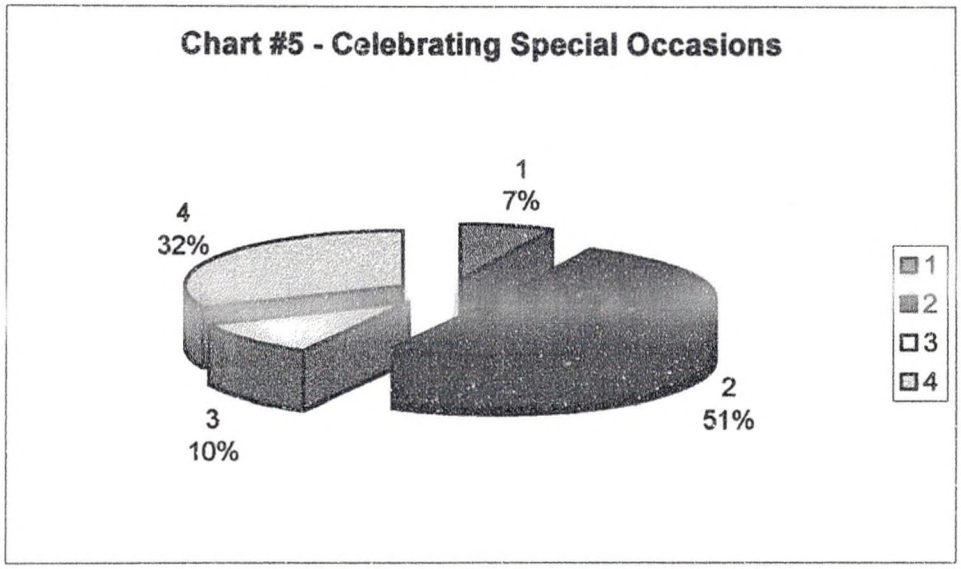
Another measure of parental attachment is the extent to which parents are involved with their son or daughter's schoolwork. Of the 695 respondents, over 56% (C4 - 1+2) reported that their parents are rarely or never involved with their schoolwork. Less than 10% (C4 - 4+5) of the students indicated that their parents were very involved in their work.



Celebrate Special Occasions

As a third measure of attachment, respondents were asked how often they celebrated a special event, or how often they participated in a family outing. It was found that a substantial percentage of students did try to be involved in family activities. These family activities could be representative of how important a student feels their family is to them, the attachment component of Hirschi's social bonding theory.

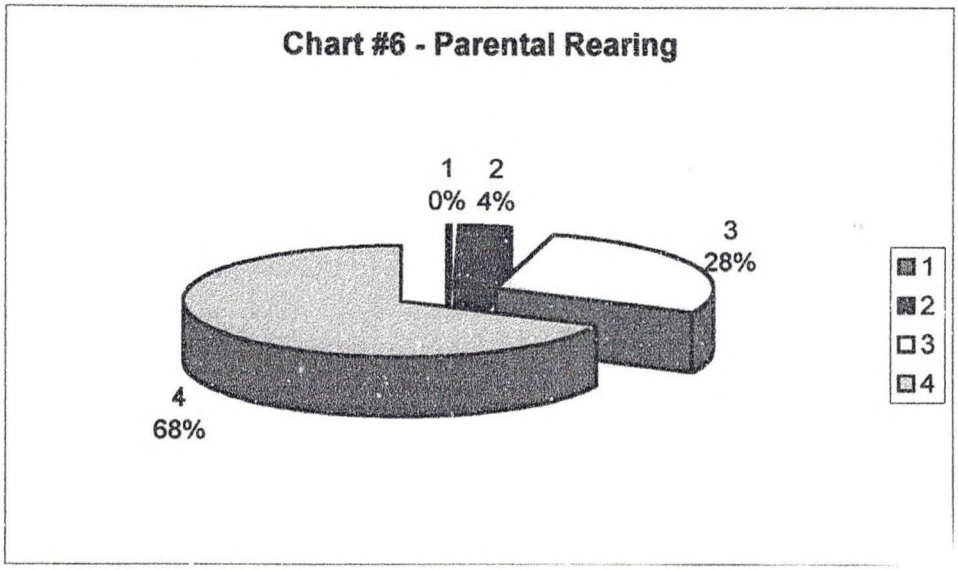
Approximately 32% (C5-4) of respondents reported that they try to get together with family as much as possible, while 51% (C5-2) reported that they get together with their family when they can, 10% (C5-3) felt they didn't often get together with their family, and 7% (C5-1) do not get together with their family at all, even for special or celebrated events like birthdays.



Parental Rearing

Respondents were also asked how well they felt their parents did in raising them (to society's norms and values). This variable consisted as the fourth measure of control theory.

Less than half of one percent of students (C6-1) reported that their parents did a poor job in raising them compared to the large 99% (C6 – 2+3+4) that felt their parents did a very good, good job or not a bad job in raising them.



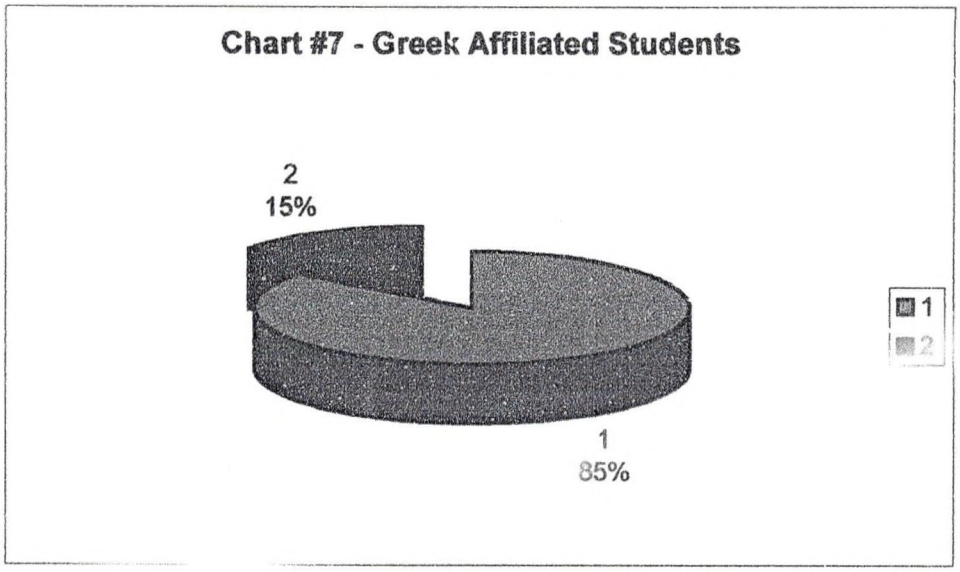
Commitment to Education

There were six different variables that were used to compute a student's commitment to their education. The first was a student's involvement in a Greek house.

Greek Houses

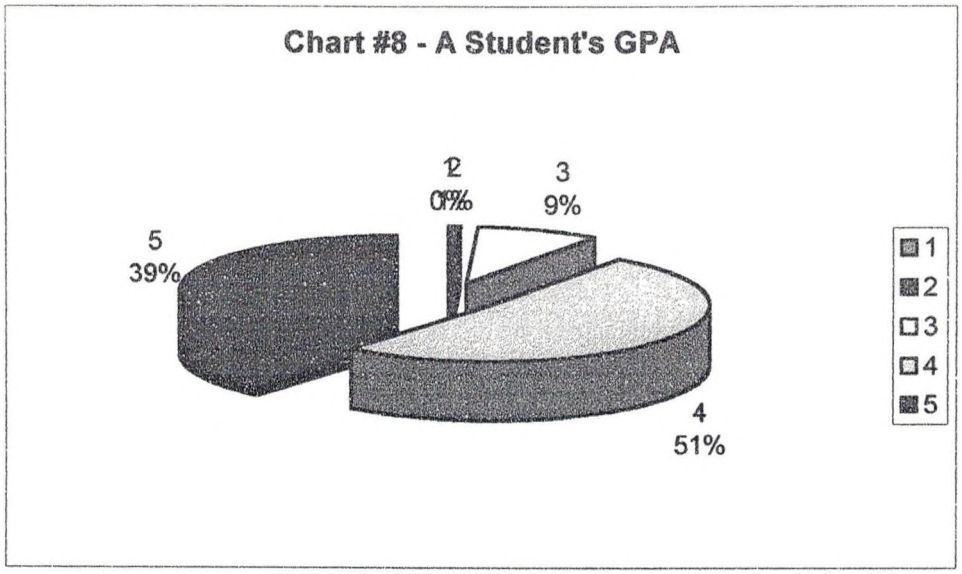
In general, college presents experiences that may compete with parental values and expectations. Membership in a sorority or fraternity offers a significant case for such competition. Fraternities and sororities often have their own subculture,

and the subculture's ideals may conflict with the norms of society. Of the respondents, almost 15% (C7-2) have been or are presently affiliated with or associated with a sorority or fraternity.



A Student's GPA

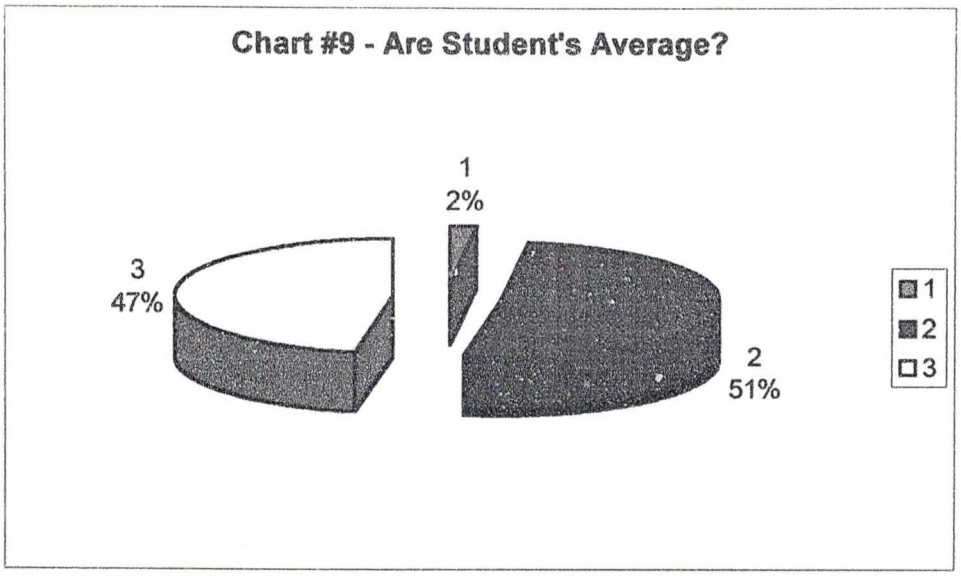
Students were then asked what their average grade point average was, using the letter grade system. Approximately 39% (C8-5) of respondents revealed that they were "A" (between 3.0 and 4.0) students. Over 51% (C8-4) of students considered themselves "B" (between 2.0 and 3.0 students), 9% (C8-3) of respondents felt they were "C" students (considered average or 1.0-2.0), while less than 1% (C8 – 1+2) reported being a "D" or "F" student (less than a 1.0).



Are Students Average?

Respondents were asked how they felt they were doing in their classes; below average, average or above average. Hirschi's social bond theory would recognize that those students who are doing well (average or above average) are more committed to their education than those students who responded that they were below average.

Approximately 51% (C9-2) of respondents believed that they were average and 47.2% (C9-3) suspected that they were above average students at the university level. Combined, a large majority, over 98% felt they were average or above average.

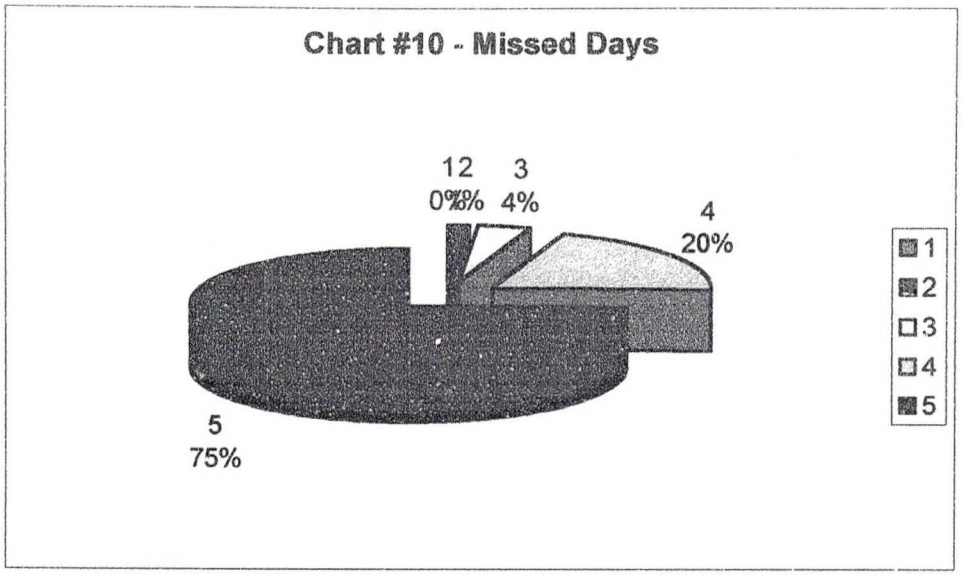


It is assumed that as a student continues through his/ her university experience, the more days and classes a student misses (the fourth and fifth measure of control theory) the more likely their grade in that class or other classes will decrease. Therefore, the more classes a student will miss will likely result in a lower grade.

It can be expected that as a student misses days of classes, or multiple classes (during the average week) they may not be as committed to their education as other students. As a student's commitment decreases, Hirschi asserts that a student may have an increased probability of deviant behavior.

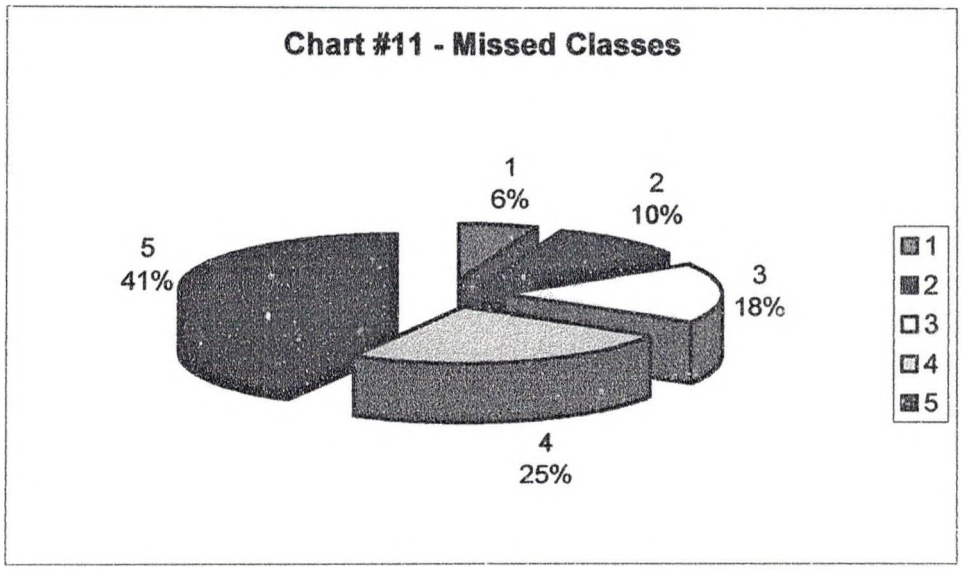
Missed Days

Students were asked how many classes they had skipped within the last school week. It was found that nearly three-quarters (C10-5) of students had not skipped a single class day within the last school week, 20% (C10-4) had skipped one day, and 5.4% (C10 – 1+2+3) of students had skipped two days or more.



Missed Classes

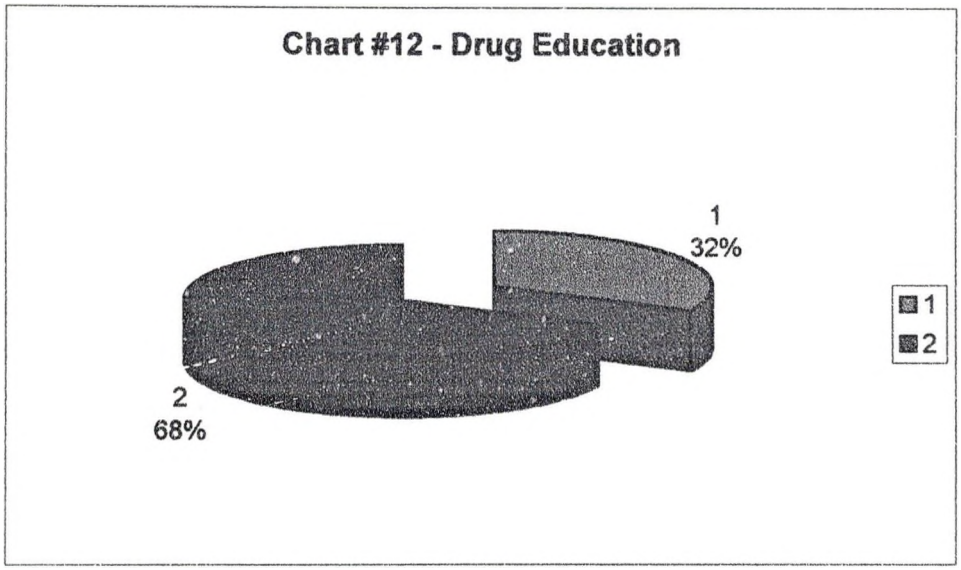
Almost 41% (C11-5) of students had not missed any classes within the last five days. However, 25% (C11-4) of students had skipped one class, 18% (C11-3) missed two classes and the remaining 16% (C11 - 1+2) of students had skipped three classes or more.



Drug Education

Drug education classes is an external variable that would help a student make a decision on whether or not he/ she should use a substance. This variable will most likely have an effect on the decision of a student's substance use. Being involved in a drug education class would control or provide some preventive issues to not using alcohol, tobacco or other drugs in fear of social or legal consequences.

A majority (C12-2) of students sampled had some form of drug education classes either in elementary school, junior high, high school or university while the remaining 32% (C12-1)of students reported not having taken a drug education class.

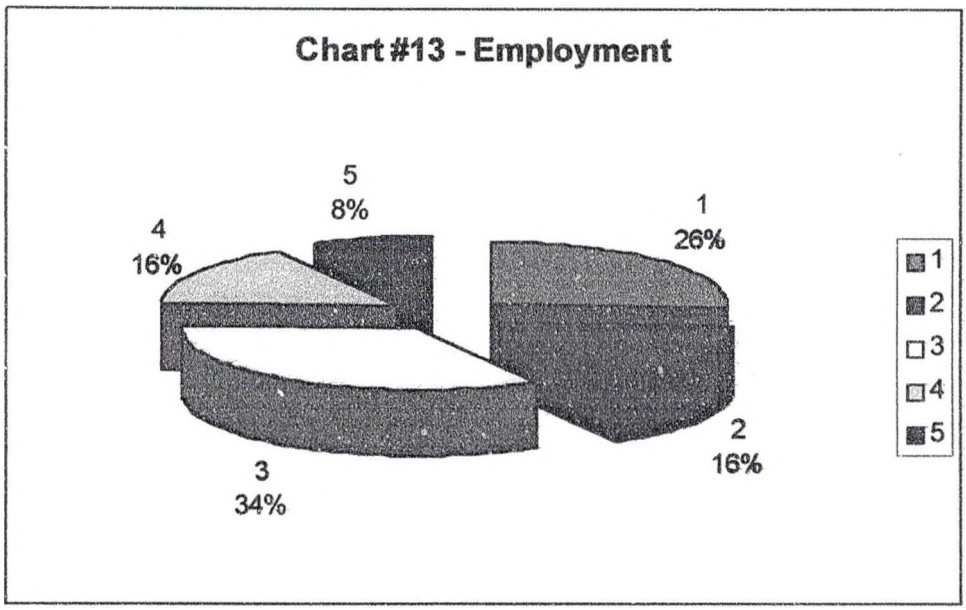


Involvement in Activities

Having a job (either full time or part time) may have an effect, either a positive effect (an involvement in socialization of society) or a negative effect (that time is taken away from a student's studying). Employment is often considered a positive influence, that people are achieving a certain economic independence, therefore, increasing a person's bond to society.

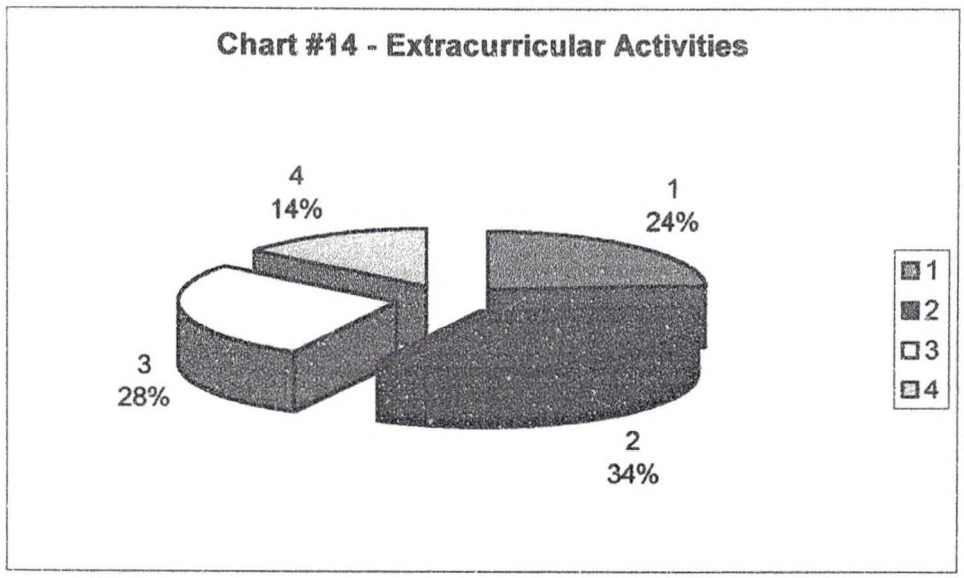
Employment

Respondents were asked whether or not they worked at a job outside of continuing their education. It was found that approximately 26% (C13-1) did not work, while the remaining 74% (C12 – 2+3+4+5) of students did have a job. Almost 50% (C13 – 2+3) of students worked between 1-20 hours a week, considered part time. Almost a quarter of the respondents (C13 - 4+5) were working full time hours while also enrolled in classes.



Extracurricular Activities

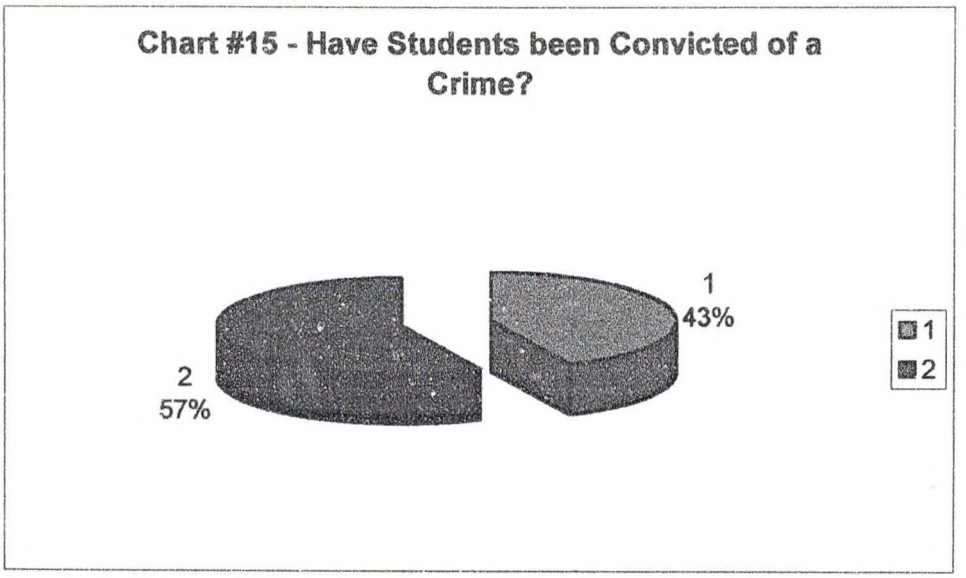
Social control theory suggests that as students increase their involvement in extracurricular activities, their bond to society increases and they are likely to maintain socially acceptable norms and values. Approximately 14% (C14-4) of students reported being very involved in extracurricular activities like sports activities and hobbies. Approximately 28% (C14-3) of students reported involvement, 34% (C14-2) reported rare involvement and almost 24% (C14-1) reported not being involved in any extracurricular activities.



Belief

Drawing from social control theory, a measure of predicted drug use would be belief in social rules. To measure this belief, each student was asked whether or not they had ever been convicted of a misdemeanor or a felony in any court of law. Social control theory would determine that as a student disobeys the law, by breaking the law and being convicted of a misdemeanor or felony, their bond to society will decrease.

Almost 57% (C15-2) of the students reported that they had been convicted of a misdemeanor or felony. The remaining 43% (C15-1) of students reported not having been convicted. However, it should be recognized that some students may have been charged but not convicted.

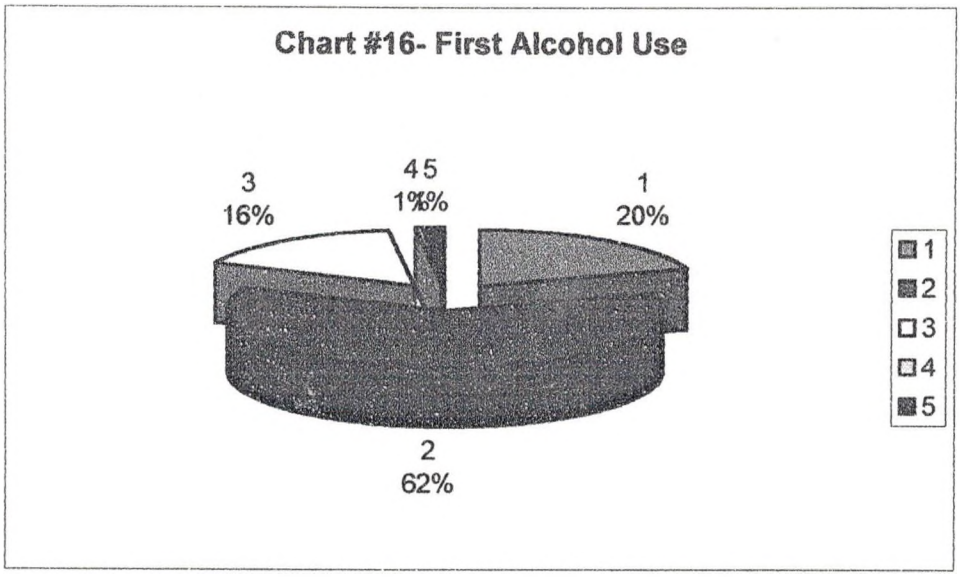


Students were also asked about their consumption of and behavior while using alcohol.

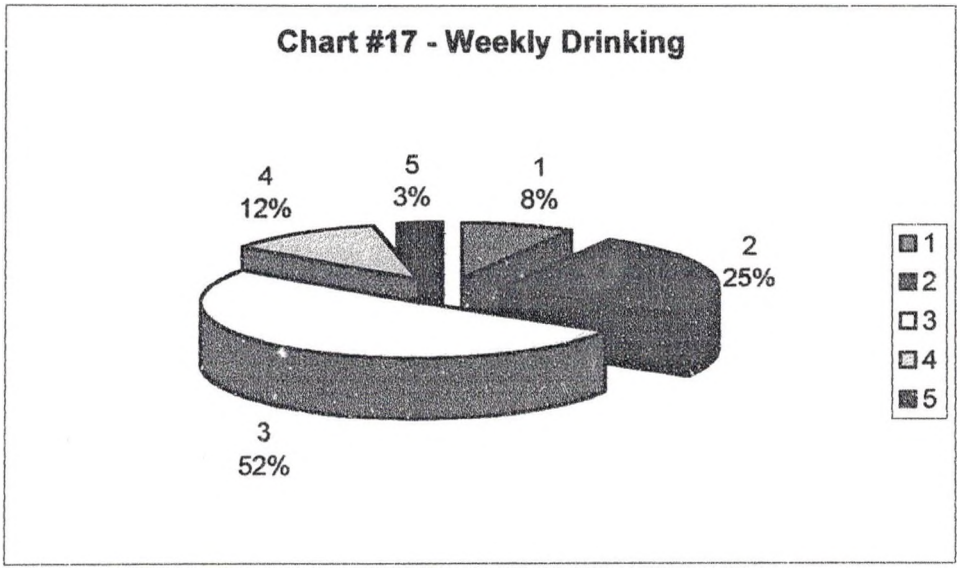
Alcohol Use

Although alcohol is considered legal (with age restrictions), the effects of alcohol use are looked down upon. Although students partake in alcohol consumption (whether it be legally or illegally), social control theory suggests that as a student consumes more alcohol, there are social consequences to higher frequencies of drinking (whether it be binge drinking or heavy drinking), which could be considered deviant, decreasing a person's bond to society.

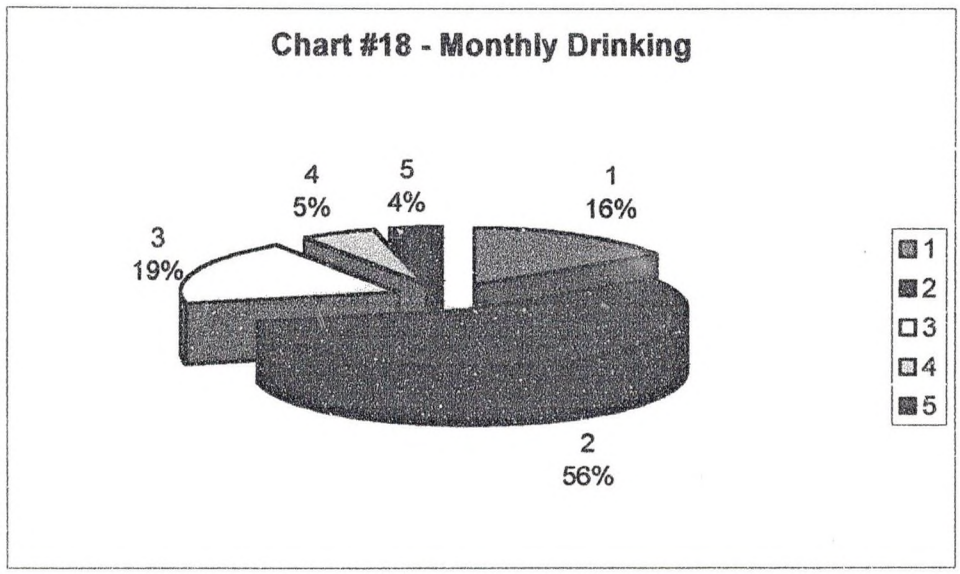
An overwhelming majority (98%) of students reported having had a drink. One in five students (C16-1) had their first drink before the age of thirteen. Approximately 62% (C16-2) first tried alcohol between the ages of 13 and 18. Another 16% (C16-3) of respondents had their first drink between the ages of 18 and 21, while less than 2% (C16- 4+5) of respondents have abstained from alcohol use.



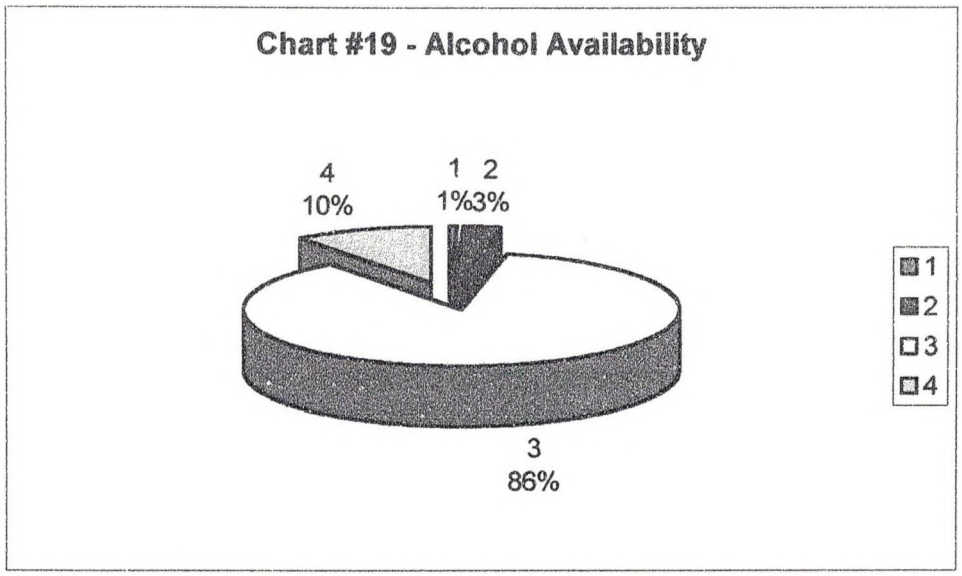
Almost 92% (C17 – 2+3+4+5) of respondents reported having at least one drink per week, while 8% (C17-1) reported not drinking, consistent with previous statements. Approximately 12% (C17-4) of students had one or more drinks between four to seven days per week. Over 50% (C17-3) of respondents said they drank between two to three days per week and 25% (C17-2) reported drinking less than once a week.



Although students drink many times a week, students reported that they do not consume a great deal of alcohol. Approximately 16% (C18-1) have not had a drink within the past month. Clearly, the majority of students (C18-2) drink between one to ten drinks per month. Nearly 20% (C18-3) of students drink between 11 and 20 drinks per month and 9% (C18 – 4+5) of students drink over 21 drinks per month.



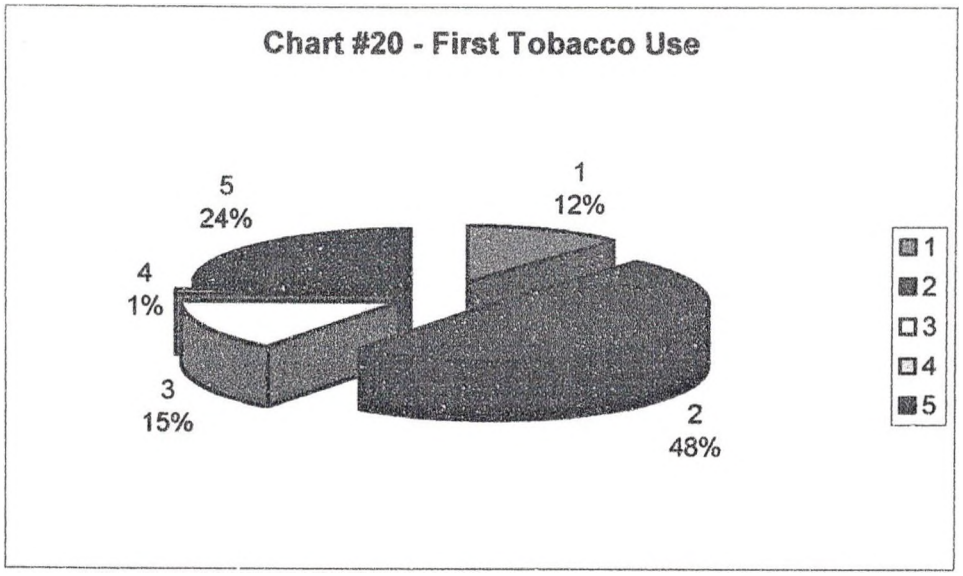
An overwhelming majority of students (C19 – 3+4) sampled suggested that alcohol is easy or very easy to obtain. Therefore, it can be said that accessibility of alcohol has no real bearing on the decision on whether to drink or not. It should be understood that many of the respondents are under the age of 21 and are already committing a deviant act in their decision to drink.



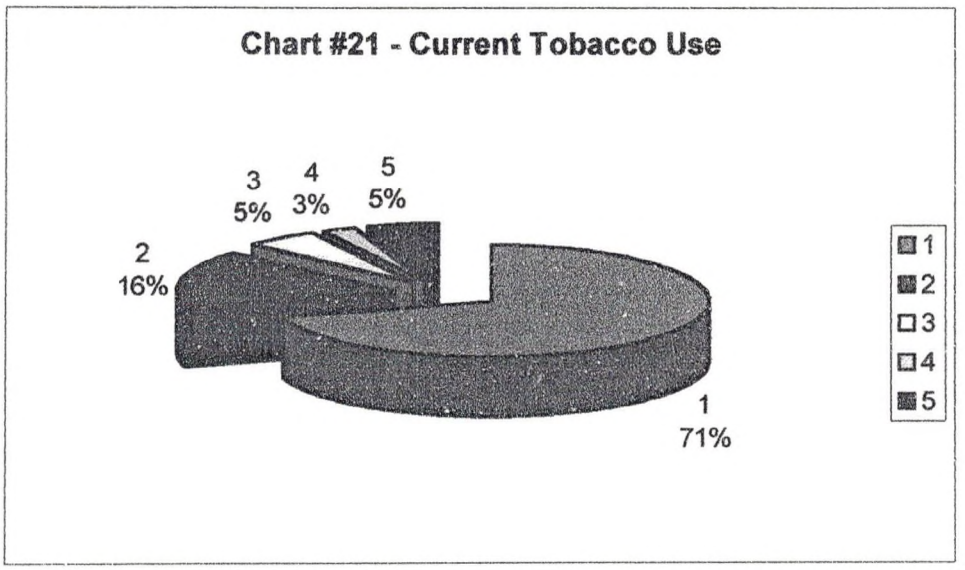
Tobacco Use

Although tobacco use is legal for those over the age of 18, its use is frowned upon because it may lead to cancer or secondary smoke that often causes other people concern. As values continue to change, smoking is perceived as more deviant, hence, a person's smoking may be considered as a lack of social values and the breakdown of social bonds.

Surprisingly, 12% (C20-1) of students surveyed reported trying a cigarette or chewing tobacco before they were the age of thirteen. The majority of students (C20-2) first tried smoking or chewing between the ages of 13 and 18 while approximately 15% (C20-3) had their first contact with nicotine between the ages of 18 and 21. Another surprising statistic is that 24% (C20-5) of students had never tried a cigarette, cigar or chewing tobacco.



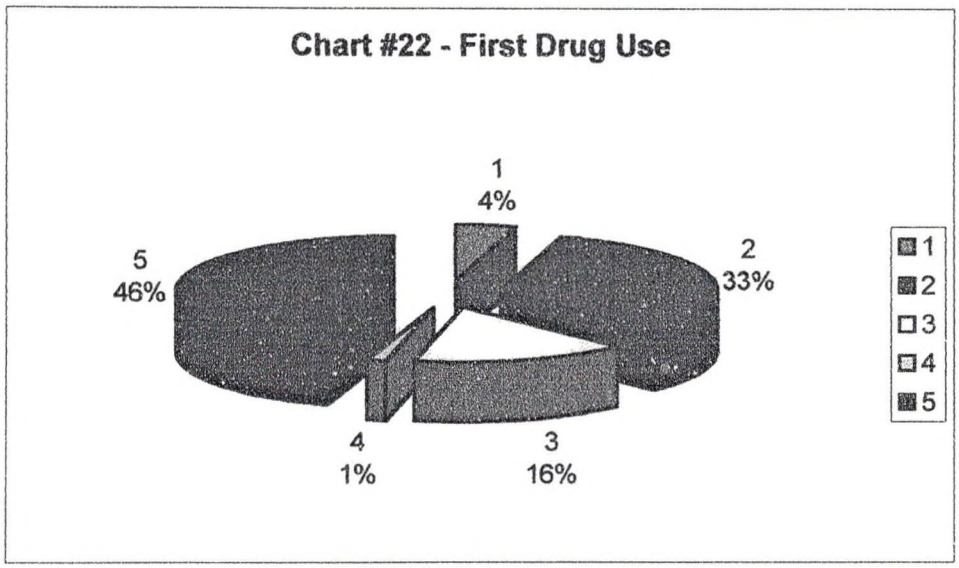
So how many students still continue to smoke after their first contact? It was found that 71% (C21-1) of students were no longer using tobacco on a recreational basis. The majority of smokers, 16% (C21-2) only smoke between one and ten times per day, while 5% (C21-3) reported smoking between 11-20 times per day, 3% (C21-4) reported smoking 21-30 times per day and another 5% (C21-5) of students reported smoking over 31 times per day.



Drug Use

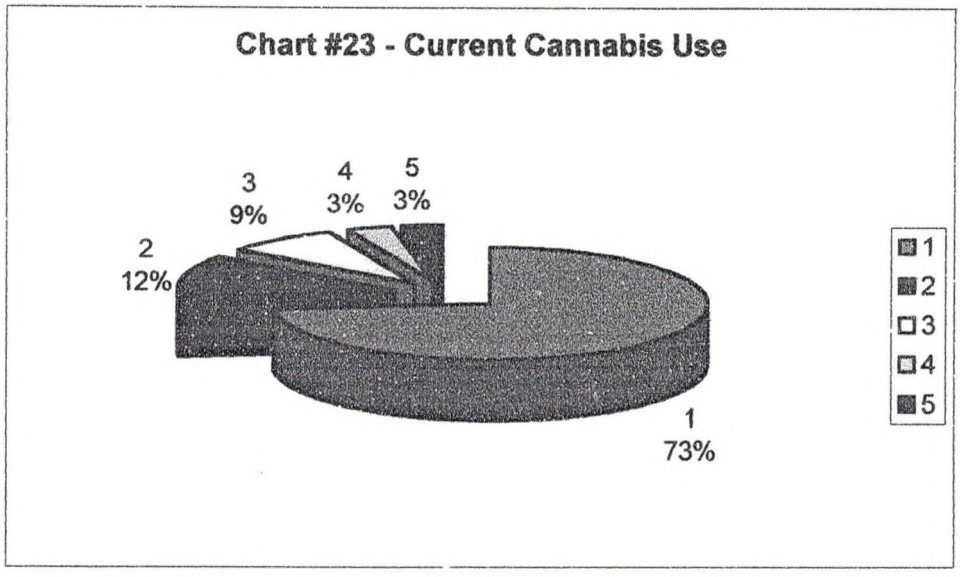
Drugs are in direct conflict with the norms and values that society has enacted both socially and legally. The possession or distribution of any drug is against the law and is therefore, against the teachings of many parents. If a student decides to use an illegal substance, Hirschi suggests that a student's bond to society is reduced.

Approximately 5% (C22-1) of respondents reported using an illegal substance under the age of thirteen. Almost one-third (C22-2) of students reported trying a drug between the ages of 13 and 18, and 16% (C22-3) of students reported first use between 18 and 21. Less than 4% (C22-4) of students reported trying drugs over the age of 21. Almost half of respondents, 46% (C22-5) reported never trying any illegal substance.

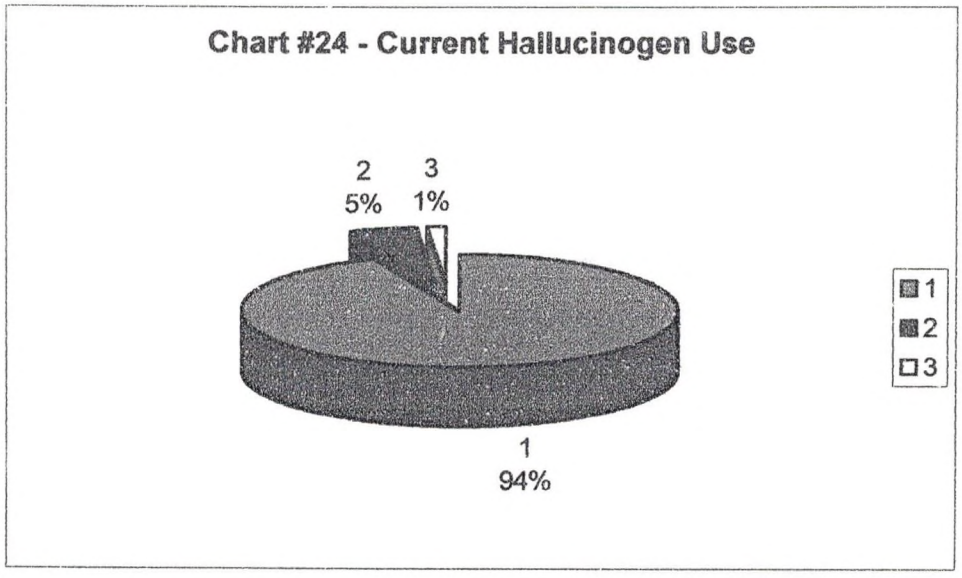


The survey also distinguished between different types of drugs. Drug categories included cannabis, hallucinogens, amphetamines, tranquilizers, stimulants, opiates and synthetic drugs. Each student was asked his or her drug use over a time period of three months.

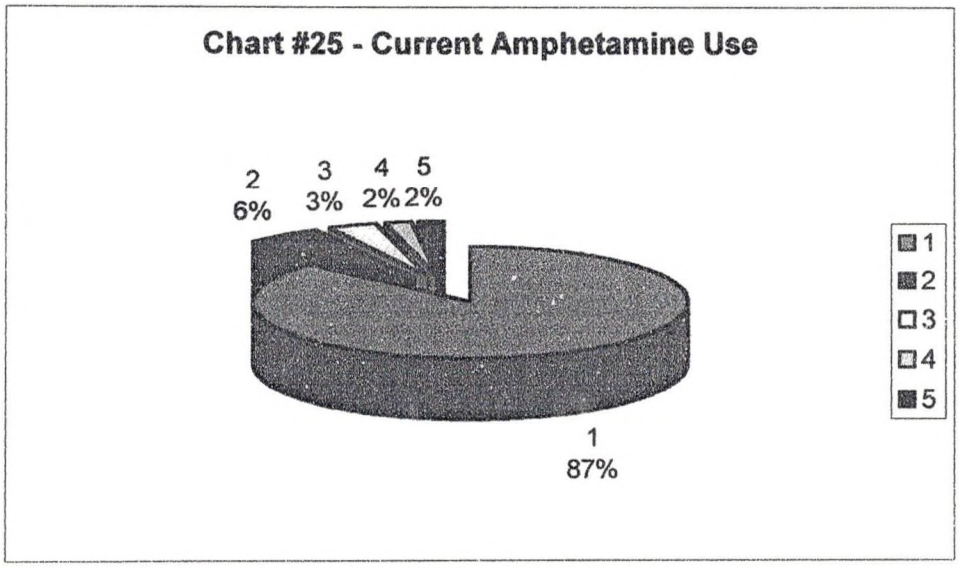
Almost 27% (C23 – 2+3+4+5) of students reported having used cannabis sometime within the last three months. Approximately 12% (C23-2) reported using cannabis once or twice within the last three months and 9% (C23-3) had used the drug three to nine times within the last three months. An additional 6% (C23 – 4+5) used cannabis 10 times or more within the last three months. Approximately 73% (C23-1) of respondents reported never trying cannabis in the last three months.



Approximately 6% (C24 – 2+3) of respondents reported using a hallucinogen at least once within the last three months. Five percent (C24-2) reported using once or twice, and 1% (C24-3) had used three or more times within the past three months. Nearly 94% (C24-1) of respondents reported never trying a hallucinogen over the past three months.

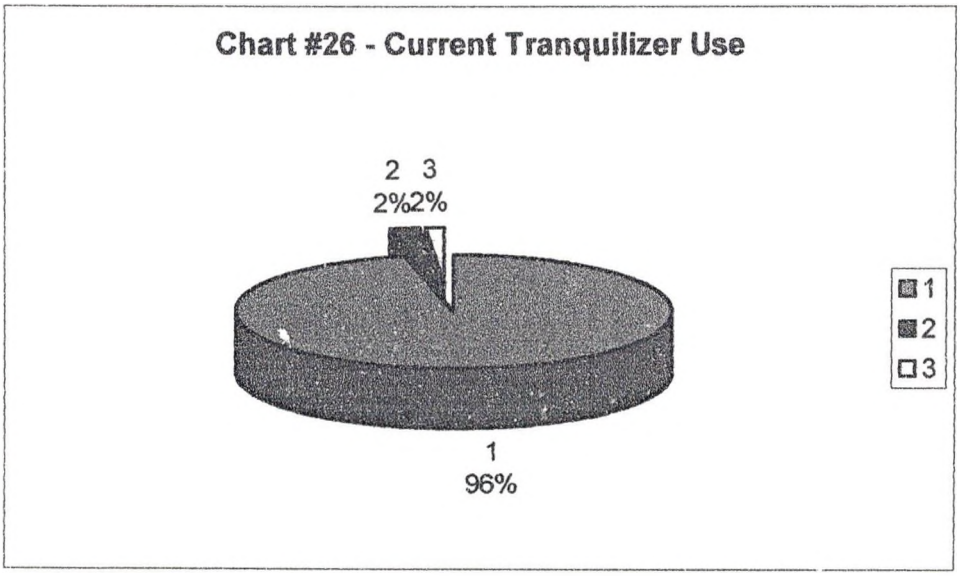


Approximately 87% (C25-1) of respondents reported no amphetamine use within the last three months. Almost 6% (C25-2) of respondents used once or twice, 3% (C25-3) used 3-9 times, 2% (C25-4) had used 10-19 times and 2% (C25-4) had used over 20 times within the last three months.

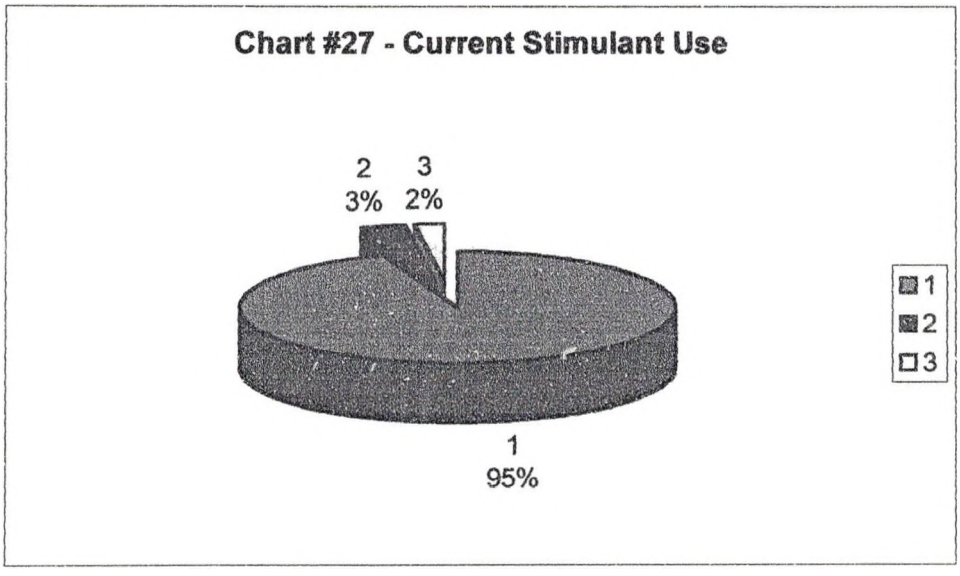


Approximately 4% (C26 – 2+3) of students at UND reported some tranquilizer use within the last three months prior to the survey. Nearly 2% (C26-2) of

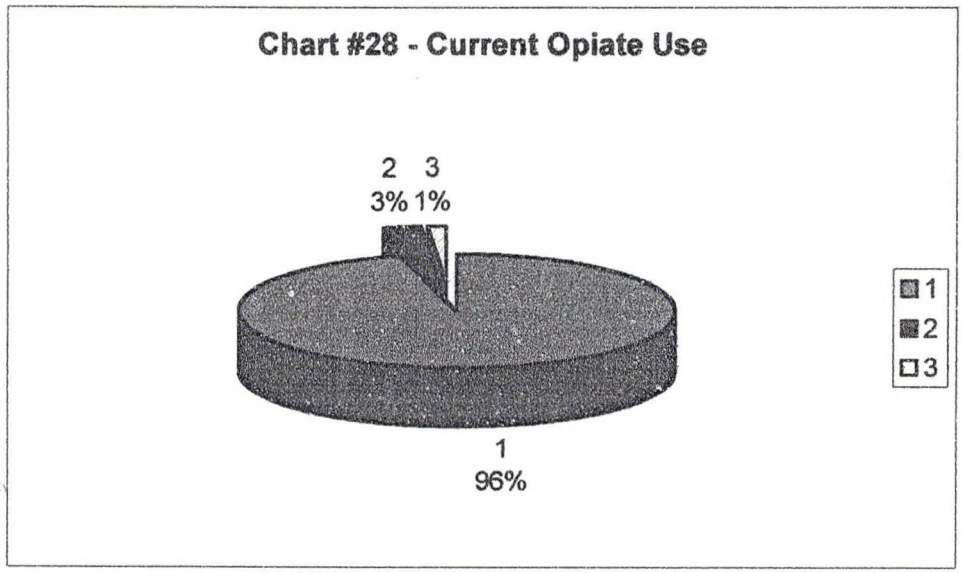
respondents had used a tranquilizer once or twice and 2% (C26-3) had used a tranquilizer over 3 times within the last three months.



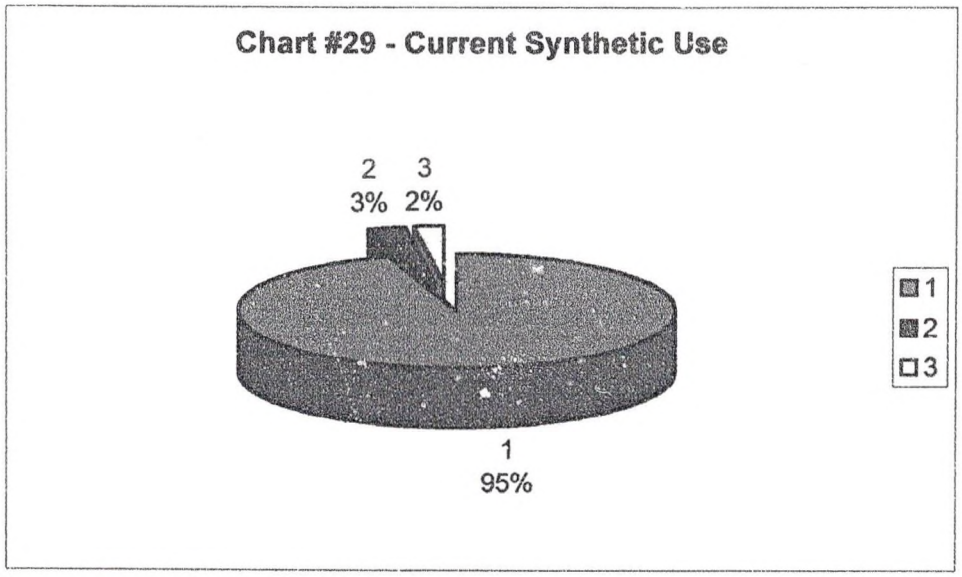
Of the students surveyed, 5.5% (C27 – 2+3)of respondents reported using a stimulant within the last three months. Approximately 3% (C27-2) reported using once or twice and another 2% (C27-3) reported using a stimulant over 3 times in the last three months.



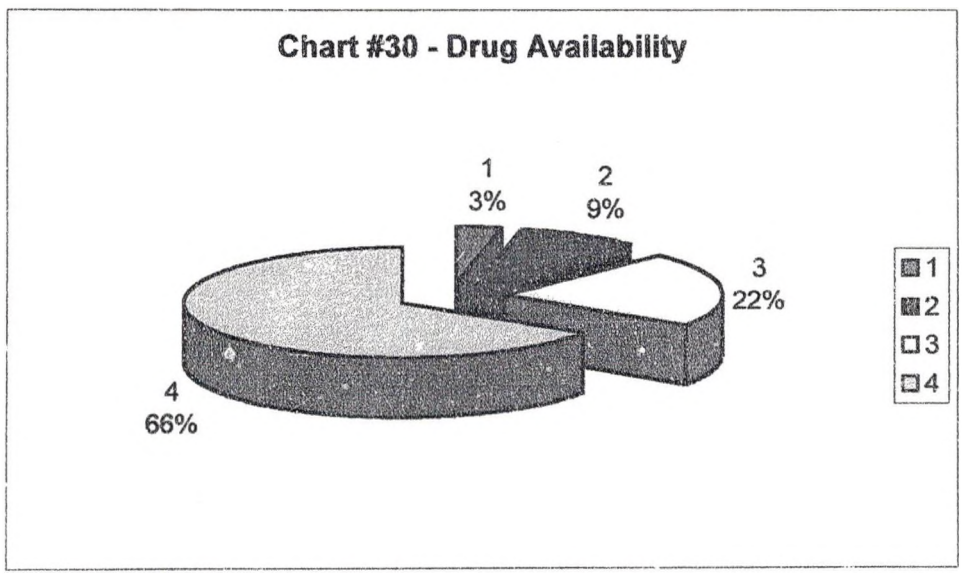
Approximately 4% (C28 – 2+3) of respondents reported using an opiate within the last three months prior to the survey. Twenty students, 3% (C28-2) reported using once or twice, and the remaining nine, 1% (C28-3) reported using 3 or more times within the last three months.



Exactly 5% (C29 – 2+3) of respondents reported using a synthetic or synthetically created drug within the last three months. Approximately 3% (C29-2) reported using once or twice, 2% (C29-3) reported using over 3 times in the last three months.



Drugs seem to be readily available either within the small community of Grand Forks or at the University of North Dakota. Almost 88% (C30 – 3+4) of the students who were surveyed reported that drugs were either very easy or not difficult at all to obtain. Therefore, it can be concluded that accessibility of drug use would not be a concern in the decision making process of a person who wanted to consume an illicit drug.



Regression Analysis

To better explain the associations and relationships between the variables already mentioned, it is important to use a more detailed multivariate analysis. The research question and other research questions were explained using both linear and logistical regression analysis.

The statistical technique of multiple regression is used to summarize data as well as quantify relationships among variables. It can also predict new observations based on a previously derived model. The most important outputs derived from the regression analysis; the model's slope (b) or unstandardized coefficient and the standardized regression coefficient known as BETA (B). BETA is the slope of the least squares line when both the X variable and the Y variable are expressed as a Z score. Included within the output are the F-statistic, probability value, standard error, t-statistic, and statistical significance.

Table #22 - Theoretical and Variable Model

Independent Variables		*Dependent Variables*
Demographic variables	→→→→→→	Substance use (weekly a monthly alcohol use, daily tobacco use, lifetime and current drug use)
Attachment	→→→→→→	
Commitment	→→→→→→	
Involvement	→→→→→→	
Belief	→→→→→→	

Scaling

Analysis began with the scaling of the attachment, commitment and involvement variables. The variables were initially coded as categorical variables. Through scaling, several related variables were combined in to new continuous

interval variables. The scaled variable is then compared to other categorical variables employing a higher level of statistical measurement.

The ATTACHMENT to parents scale was computed from four categorical variables that are important in operationalizing Hirschi's social bonding concept of attachment. The four variables were combined in to a 17-point scale. A person who registered a lower number (no less than 4) has a lower attachment to his/her parents while someone who had a high numerical value (no greater than 17) has a higher attachment to his/her parents. The questions pertaining to attachment are eating dinner with one's parents, a parent's involvement in a student's schoolwork, celebrating special occasions, and parental rearing.

The COMMITMENT to education scale was computed from six binary and ordinal variables. These variables were converted into one single interval scale ranging in value from six to twenty-four. A score of six indicates that a student has a low commitment to their studies and a higher number (no greater than 24) means that a student has a high commitment towards his/her studies. The six variables tested to operationalize Hirschi's concept of commitment were whether or not a student was affiliated with a Greek house, the student's grades, how they felt they were doing in classes, the number of days they had missed (in the previous week), the number of classes they had missed (in the previous week), and whether or not students reported that their education was important to them.

A student's INVOLVEMENT is an interval measure of two variables intended to measure the concept of involvement according to Hirschi's social control theory. These variables included if a student was involved in an extracurricular activity and

the number of hours he/she worked (if they had a job). They were converted into one scale ranging from two to nine. A two indicates low involvement and a nine indicates a high involvement in activities that would be socially acceptable.

To measure Hirschi's concept of BELIEF, students were asked if they had been convicted of a misdemeanor or felony, with a range from zero (low belief in society's rules) to two (high belief in society's rules).

Several variables needed to be changed into binary (zero and one) variables so that they could be entered into the different regression models. This form of coding is known popularly as dummy coding. This was done with the variables of age groups, levels of study, where a student had grown up, student residence, income and days a student goes out each week.

Testing the Models

Five models were used to indicate the significance between the dependent variables of various types of substance use and the predictive power of the independent variables of Hirschi's attachment, commitment, involvement and belief. Demographic variables and other variables of interest were also included as predictive variables of substance use.

Weekly Drinking

Using linear regression, it was found that there was statistical and substantive significance when several variables were included in the model to determine weekly drinking patterns of students at UND.

Table 23 presents the reported weekly drinking of UND students as compared to Hirschi's social control theory's concepts of attachment, commitment,

involvement, and belief. Other demographic variables were also included into the model. The data shows a significant negative relationship between attachment (BETA=-.086, sig.=.018), commitment (B=-.156, sig.=.000) and involvement (B=-.087, sig.=.018) and belief (B=.171, sig.=.007). Therefore, the model concludes that as the social bonds to students increase, the level of weekly drinking decreases. Therefore, Hirschi's bonding theory would be supported.

The model explains that approximately 29% of the variance was explained (r square =.286). The sum of squares for the regression was 149.346, the degrees of freedom is 31, the F-value was 8.299 and there is a significance level of .000 when each variable was included in the model, as a predictor of weekly drinking (see Table below).

Age distribution. When age groups were examined, it was found that those students between the ages of 22 to 24 (B=.101, sig.=.030) are more likely to go out on a weekly basis and consume alcohol.

Greek houses. There was also significance when those affiliated with Greek houses were asked to whether or not to how many times they had gone out during the last week to consume alcohol. It was found that those affiliated with Greek houses were more likely to go out and consume alcohol (B=.090 and sig.=.011).

Table #23 - Weekly Drinking Patterns of UND Students

Weekly Drinking Variable	Mean	BETA	b	S.E	t	Sig.
Attachment	*10.19*	*-.086*	*-3.41E-02*	*.01*	*-2.37*	*.018*
Commitment	*18.62*	*-1.56*	*-5.42E-02*	*.01*	*-4.21*	*.000*
Involvement	*5.00*	*-.087*	*-5.29E-02*	*.02*	*-2.37*	*.018*
Belief	*.57*	*.096*	*.17*	*.06*	*2.69*	*.007*
Gender	.45	.056	9.85E-02	.06	1.54	.125
Age groupunder 18	*4.45E-03*	-.091	*-1.20*	*.47*	*-2.57*	*.011*
18-19	.28	-.091	-.18	.10	-1.71	.088
20-21	.36	------	----------	----	------	-----
22-24	*.27*	.101	*.20*	*.09*	*2.19*	*.030*
over 25	9.64E-02	-.032	-9.63E-02	.15	-.66	.507
Class Freshman	.20	.054	.12	.22	.55	.584
Sophomore	.26	-.014	-2.88E-02	.20	-.14	.886
Junior	.22	.021	4.47E-02	.20	.23	.822
Senior	.28	.065	.13	.19	.67	.503
Grew up<10th	.39	-------	----------	----	------	-----
10-50th	.22	.001	3.08E-03	.08	.04	.970
50-100th	.27	-.040	-7.92E-02	.08	-1.03	.302
100-500th	6.23E-02	.037	.14	.13	1.05	.296
>500th	6.08E-02	.031	.12	.14	-.85	.398
Live with friend	.63	.004	8.19E-03	.14	.06	.954
alone	.15	-.094	-.23	.15	-1.57	.117
parent	3.86E-02	.075	.34	.20	1.69	.092
parents	.11	-.035	-9.80E-02	.17	-.58	.559
Greek house	*.15*	*.090*	*.22*	*.09*	*2.54*	*.011*
Income <$100	.52	-.030	-5.28E-02	.10	-.51	.613
$101-200	.27	.012	2.38E-02	.11	2.09	.834
$201-300	7.57E-02	-.002	-5.74E-03	.16	-.04	.971
>$301	3.56E-02	-.023	- .11	.20	-.55	.585
Days outs/wk 6-7	*1.19E-02*	*.091*	*.74*	*.28*	*2.63*	*.009*
4-5	8.61E-02	*-.008*	-2.37E-02	.11	-.21	.835
2-3	.55	-------	----------	---	-------	-----
once	*.22*	*-.217*	*-.46*	*.08*	*-5.97*	*.000*
rare	*.12*	*-.302*	*-.81*	*.10*	*-7.82*	*.000*
Drug education	.69	-.035	-6.66E-02	.07	-.99	.325

Model r=.535, r square=.286, adjusted r square=.252, sum squares=149.346, df=31, 642, mean square=4.818, F=8.299, sig.=.000

Monthly Drinking

Table 24 (a linear regression model) presents the association of reported monthly drinking of UND students. With the predictive variables, the data shows a significant negative relationship between attachment (B=-.090, sig.=.007), commitment (B=-.112, sig.=.001) and involvement (B=-.177, sig.=.000). As each bonding concept increases (in accordance to the theory) weekly drinking decreases. It was also found that students convicted of a crime (B= .090, sig.= 006) were also more likely to drink often each month. This model most certainly supports Hirschi's theory on social bonding.

Approximately 40% of the variance was explained (r square =.396). The sum of squares for the regression model was 224.128, the degrees of freedom (31, 645 – residual), the F-value was 7.230 with a significance level of .000 for the entire model (see Table #24 below).

Age distribution. When other variables were included as predictors, age groups were found to be significant. Those students aged 22 to 24 (B=.186, sig.=.001) were the most likely to drink frequently on a monthly basis. Those aged 20 to 21 (B=.120, sig.=.022) were also found to be frequent drinkers and there seems to be a decline for students over the age of 25 (B=.106, sig.=.038).

Greek houses. There was also a positive relationship found between those affiliated with a Greek house and frequent monthly drinking. Those students who have been or are currently members of fraternities or sororities are more likely to drink frequently (B=.156, sig.=.000).

Other variables were also found to be significant in the model. Students who are originally from larger metropolitan areas, from cities between 100,000 and 500,000 (B=.115, sig=.000) and over 500,000 (B=.082, sig.=.016) were more likely to drink on a monthly basis than those from smaller rural towns. Students who presently have one parent (or guardian) are far more likely (B=.085, sig=.039) to drink frequently each month than those students living alone, with friends, with two parents or others. It was also found that those students who go out more 6-7 times per week (B=.083, sig.=.009) were more likely to frequently drink than those 4-5 times per week (B=.162, sig.=.000) and far more likely than those who go out less than three times per week. It was found that students with approximately $101 to $200 of spending money each week were the most likely to drink on a monthly basis compared with those who make either more or less than that category of income (B=.136, sig.=.010).

The data also supports the hypothesis that students who have not taken a drug education class (B=-.100, sig.=.002) are more likely to use alcohol more frequently than students who have taken a drug education class.

Table #24 - Monthly Drinking Patterns of UND Students

Monthly Drinking Variable	Mean	BETA	b	S. E	T	Sig.
Attachment	*10.19*	*-.090*	*-3.68E-02*	*.01*	*-2.68*	*.007*
Commitment	*18.60*	*-.112*	*-4.04E-02*	*.01*	*-3.29*	*.001*
Involvement	*4.99*	*-.177*	*-.11*	*.02*	*-5.23*	*.000*
Belief	*.57*	*.090*	*.17*	*.06*	*2.76*	*.006*
Gender	.45	.004	6.55E-03	.06	.11	.915
Age groupunder 18	4.43E-03	*-.024*	-.33	.44	-.75	.453
18-19	.27	-------	----------	-----	------	-----
20-21	*.36*	*.120*	*.23*	*.10*	*2.29*	*.022*
22-24	*.27*	*.186*	*.38*	*.12*	*3.19*	*.001*
over 25	*9.60E-02*	*.106*	*.33*	*.16*	*2.08*	*.038*
Class Freshman	.19	.016	3.60E-02	.21	.17	.863
Sophomore	.26	-.037	-7.76E-02	.19	-.40	.686
Junior	.22	-.040	-8.76E-02	.19	-.46	.644
Senior	.29	.022	4.42E-02	.18	.24	.807
Grew up<10th	.39	-------	----------	-----	-------	-----
10-50th	.22	*.022*	4.86E-02	.08	.62	.535
50-100th	.27	*-.011*	-2.17E-02	.07	-.30	.766
100-500th	*6.20E-02*	*.155*	*.43*	*.12*	*3.52*	*.000*
>500th	*6.06E-02*	*.082*	*.31*	*.13*	*2.41*	*.016*
Live with friend	.63	-.022	-4.24E-02	.14	-.31	.756
alone	.15	-.087	-.22	.14	-1.57	.117
parent	*3.84E-02*	.085	*.40*	*.20*	*2.07*	*.039*
parents	.11	-.058	-.17	.16	-1.04	.298
Greek house	*.15*	*.156*	*.40*	*.08*	*4.81*	*.000*
Income <$100	.52	.038	6.96E-02	.10	.70	.485
$101-200	*.27*	.136	*.28*	*.11*	*2.58*	*.010*
$201-300	*7.53E-02*	.156	*.54*	*.15*	*3.60*	*.000*
>$301	3.55E-02	-.007	-3.37E-02	.19	-.18	.857
Days outs/wk 6-7	*1.18E-02*	*.083*	*.70*	*.27*	*2.62*	*.009*
4-5	*8.71E-02*	*.162*	*.53*	*.11*	*4.87*	*.000*
2-3	*.55*	-------	----------	-----	-------	-----
once	*.23*	*-.229*	*-.50*	*.07*	*-6.86*	*.000*
rare	*.12*	*-.269*	*-.75*	*.10*	*-7.58*	*.000*
Drug education	*.68*	*-.100*	*-.20*	*.06*	*-3.06*	*.002*

Model r=.629, r square=.396, adjusted r square=.367, sum squares=224.128, df=31, 645, mean square=7.230, F=13.628, sig.=.000

Current Smoking

Table 25 presents the reported daily smoking behavior of UND students. The data reveals a negative relationship between commitment (B=-.158, sig.=.000), involvement (B=-.089, sig.=.019) and belief (B=.102, sig.=.005) and daily smoking. This model (using a linear regression) certainly supports Hirschi's theory in that as a student's bond to society increases, they are less likely to smoke on a daily basis.

The model explains approximately 25% of the variance (r square =.249). The sum of squares for the regression was 193.323, the degrees of freedom (31, 645 – residual), the F-value was 6.888 and there was a significance level of .000 for the model (see Table #25 below).

Age distribution. Age and smoking were among several variables that are statistically significant. Controlling for other factors, age groups were found to be significant with those students between the ages of 22 and 24 (B=.134, sig.=.040) and those aged 25 and over (B=.174, sig.=.002) reporting the most current tobacco use. Therefore, those who are younger in age are less likely to have used tobacco on a daily basis.

Greek houses. The data further suggests that a positive relationship exists between those affiliated with a Greek house and daily tobacco use. Those students who have been or are currently members of fraternities or sororities were more likely to smoke on a daily basis (B=.105, sig.=.004).

Other variables were also found to have predictive power. The data indicates that women (B=-.102, sig.=.006) are more likely than men to smoke or use a tobacco product on a daily basis. Students who lived with a friend (B=-.161, sig.=.046) or alone (B=-.149, sig.=.016) were less likely to use tobacco on a daily basis compared

students who lived with a parent or parents. It was also found that students with approximately $201 to $300 of spending money each week were the most likely to be current and, or daily users of tobacco (B=.121, sig.=.012). Students who go out more, 4-5 times per week, (B=.241, sig.=.000) were more likely to currently use tobacco. The data supports the conclusion that students who have not taken a drug education class (B=-.077, sig.=.036) are more likely to have used tobacco on a daily basis compared with a student who has had a drug education class.

Table #25 - Current Smoking Patterns of UND Students

Current Smoking Variable	Mean	BETA	b	S. E.	t	'Sig.
Attachment	10.19	-.031	-1.51E-02	.02	-.84	.400
Commitment	*18.60*	*-.158*	*-6.67E-02*	*.02*	*-4.16*	*.000*
Involvement	*4.99*	*-.089*	*-6.54E-02*	*.03*	*-2.36*	*.019*
Belief	*.57*	*.102*	*.22*	*.08*	*2.80*	*.005*
Gender	*.45*	*-.102*	*-.22*	*.08*	*-2.75*	*.006*
Age groupunder18	4.43E-03	-.055	-.89	.57	-1.57	.119
18-19	.27	-------	----------	-----	------	-----
20-21	.36	.096	.22	.13	1.64	.102
22-24	*.27*	.134	*.32*	*.16*	*2.06*	*.040*
over 25	*9.60E-02*	.174	*.63*	*.21*	*3.06*	*.002*
Class Freshman	.19	.030	8.18E-02	.28	.30	.763
Sophomore	.26	-.078	-.19	.25	-.76	.449
Junicr	.22	-.091	-.24	.25	-.95	.343
Senior	.29	-.095	-.23	.24	-.96	.339
Grew up<10th	.39	--------	----------	-----	-----	-----
10-50th	.22	.033	8.51E-02	.10	.83	.406
50-100th	.27	.001	2.72E-03	.10	.03	.977
100-500th	6.20E-02	.041	.18	.17	1.14	.255
>500th	6.06E-02	.007	3.35E-02	.17	.20	.844
Live with friend	*.63*	-.161	*-.36*	*.18*	*-2.00*	*.046*
alone	*.15*	-.149	*-.45*	*.19*	*-2.42*	*.016*
parent	3.84E-02	.042	.24	.26	.93	.353
parents	.11	-.099	-.34	.21	-1.60	.109
Greek house	*.15*	*.105*	*.32*	*.11*	*2.89*	*.004*
Income <$100	.52	.002	5.18E-03	.13	.04	.968
$101-200	.27	.070	.17	.14	1.19	.234
$201-300	*7.53E-02*	.121	*.49*	*.20*	*2.50*	*.012*
>$301	3.55E-02	.012	7.01E-02	.25	.29	.774
Days outs/wk 6-7	1.18E-02	.043	.43	.35	1.23	.220
4-5	*8.71E-02*	.241	*.92*	*.14*	*6.48*	*.000*
2-3	.55	-------	----------	-----	-----	-----
once	.23	-.054	-.14	.10	-1.46	.145
rare	.12	-.039	-.13	.13	-1.00	.319
Drug education	*.68*	*-.077*	*-.18*	*.09*	*-2.11*	*.036*

Model r=.499, r square=.249, adjusted r square=.213, sum squares=193.323, df=31, 645, mean square=6.236, F=6.888, sig.=.000

Lifetime Drug Use

Using logistic regression, statistical significance was found for many variables within the model determining the lifetime drug use of students at UND.

Table 26 presents the reported lifetime drug use of UND students in the model. The data supports the conclusion that commitment and belief were the only two of Hirschi's four concepts in which statistical significance could be reached. An inverse relationship was found here, as commitment increases (B=-.233, sig.=.000), a student is less likely to have used an illegal drug in their lifetime. It was also found that students not convicted of a crime (B= .808, sig.=.000) were less likely to have tried an illegal drug. This model suggests that Hirschi's theory on social bonding would be applicable.

The model recognizes that approximately 72% of the predicted variance can be explained. The chi-square model was 163.120, the number of degrees of freedom is 31, and the level of significance is .000. The model showed a –2 log likelihood of 768.357 and a Cox and Snell R Square of .214.

Age distribution. This model suggests that two different age groups were found to be significant. Those students between the ages of 18 to 19 (B=-1.305, sig=.008) and those aged 22 to 24 (B=-1.154, sig.=.008) reported to be the least likely to have used an illegal drug within their lifetime.

Greek houses. The data suggests that a relationship can be made between those affiliated with a Greek house and current drug use. Those students who are members of fraternities or sororities were more likely to have used an illegal drug in their lifetime (B=..925, sig.=.001).

Students who had lived alone (B=1.317, sig.=.004) were the most likely to not have used an illegal drug within their lifetime.

After examining other variables, there are some relationships that can be made. It was found that students who have over $301 of spending money each week were the most likely to have used a drug in their lifetime (B=1.436, sig.=.026). Students who go out more 4-5 times per week (B=.905, sig.=.050) were the most likely to have currently used an illegal drug.

Table #26 - Lifetime Drug Use of UND Students

Lifetime Drug Use Variable	B	S.E	Wald	Sig.
Attachment	-.042	.043	.954	.329
Commitment	*-.233*	*.041*	*31.716*	*.000*
Involvement	-.114	.066	2.941	.086
Belief	*.808*	*.186*	*18.770*	*.000*
Gender	-.035	.190	.034	.854
Age group under18	2.742	7.807	.123	.725
18-19	*-1.305*	*.492*	*7.030*	*.008*
20-21	*-1.154*	*.432*	*7.116*	*.008*
22-24	-.614	.418	2.159	.142
over 25	-------	------	-------	-----
Class Freshman	.411	.645	.406	.524
Sophomore	.406	.593	.468	.494
Junior	.634	.586	1.172	.279
Senior	-.059	.559	.011	.916
Grew up<10th	.184	.424	.189	.663
10-50th	.679	.441	2.372	.124
50-100th	.720	.439	2.690	.101
100-500th	.896	.541	2.745	.098
>500th	-------	------	-------	-----
Live with friend	-.703	.435	2.619	.106
alone	*-1.317*	*.451*	*8.518*	*.004*
parent	.417	.651	.410	.522
parents	-.944	.507	3.464	.063
Greek house	*.925*	*.280*	*10.936*	*.001*
Income <$100	.007	.309	.000	.983
$101-200	.423	.340	1.549	.213
$201-300	.522	.476	1.204	.273
>$301	*1.436*	*.647*	*4.931*	*.026*
Days outs/wk 6-7	-.768	.878	.764	.382
4-5	*.905*	*.462*	*3.834*	*.050*
2-3	.299	.304	.964	.326
once	-.226	.328	.477	.490
rare	-------	------	------	-----
Drug education	.085	.201	.179	.672

Model chi-square=163.120, df=31, sig.=.000, -2log likelihood=768.357, Cox &Snell r square=.214, overall predicted average=71.6%

Current Drug Use

Table 27 presents the model predicting current drug use (drug use within the previous three months of being surveyed) of UND students. Using a logistical regression model it was found that commitment and belief were again, the only two of Hirschi's four concepts in which statistical significance could be reached. When commitment (B=-.160, sig.=.000) and belief (B=.449, sig.=.023) increase, a student is less likely to have used a drug within the last three months.

Seventy-five percent of the predicted variance was explained. The chi-square was 146.963, the number of degrees of freedom is 31, and the level of significance is .000. The model showed a –2 log likelihood of 719.424 and a Cox and Snell R Square of .195.

Age distribution. There was no significance between any of the age groups. However, it was found that Seniors (B=-1.290, sig.=.018) were the least likely to have tried an illegal drug within the last three months.

Greek houses. The model reveals that those who are affiliated with a Greek were more likely to have used an illegal drug within the previous three months of being surveyed (B=.631, sig.=.018).

Examining other variables, there were relationships between disposable income and the number of occasions a student goes out socially. It was found that students who have between $201-$300 of spending money each week were the most likely to have used a drug within the last three months (B=1.309, sig.=.008). Students who go out between 4 to 5 times per week (B=2.049, sig.=.000) were the most likely to engage in current drug use.

Table #27 - Current Drug Use of UND Students

Current Drug Use Variable	B	S.E	Wald	Sig.
Attachment	-.051	.046	1.228	.268
Commitment	*-.160*	*.040*	*15.748*	*.000*
Involvement	-.024	.069	.118	.732
Belief	*.449*	*.197*	*5.175*	*.023*
Gender	.031	.198	.025	.874
Age group under18	5.071	7.809	.422	.516
18-19	-.608	.530	1.316	.251
20-21	-.515	.461	1.252	.263
22-24	-.734	.443	2.889	.089
over 25	------	------	-------	-----
Class Freshman	-.743	.645	1.328	.249
Sophomore	-.981	.588	2.788	.095
Junior	-.808	.571	2.000	.157
Senior	*-1.290*	*.544*	*5.618*	*.018*
Grew up<10th	-.678	.430	2.482	.115
10-50th	-.258	.445	.335	.563
50-100th	.095	.440	.047	.828
100-500th	.045	.530	.007	.932
>500th	-------	-----	-------	-----
Live with friend	.671	.486	1.908	.167
alone	.157	.505	.096	.756
parent	1.195	.661	3.270	.071
parents	.122	.568	.046	.829
Greek house	*.631*	*.266*	*5.637*	*.018*
Income <$100	.436	.355	1.511	.219
$101-200	.660	.378	3.052	.081
$201-300	*1.309*	*.492*	*7.062*	*.008*
>$301	.996	.633	2.480	.115
Days outs/wk 6-7	-.787	1.172	.451	.502
4-5	*2.049*	*.468*	*19.156*	*.000*
2-3	.503	.339	2.205	.138
once	.411	.368	1.249	.264
rare	-------	------	--------	-----
Drug education	-.059	.207	.082	.775

Model chi-square=146.963, df=31, sig.=.000, -2log likelihood=719.424, Cox &Snell r square=.195, overall predicted average=74.7%

The final chapter will make further conclusions of what the data can support and what it cannot. The next chapter will also assess the different research questions which were raised.

CHAPTER VI

DISCUSSION

This chapter will provide a discussion of the study and its theoretical frameworks (the testing of Hirschi's control theory). The first part of the chapter will focus on the frequency of drug use, demographic variables and other variables that the author felt were of interest. The remainder of the chapter will then further examine and discuss any conclusions that can be made testing social control theory and collegiate substance use.

Frequency of Substance Use

Alcohol Use

An overwhelming majority (98%) of UND students reported having had a drink in their lifetime and over 90% of students reported that they had been drunk before. This is very consistent with other studies that have been done with collegiate students. College students have been known to party while in university; to "blow off steam" before or after finals therefore, this is not an uncommon trend at the University of North Dakota.

Almost 92% of respondents reported having at least one drink per week, while 8% reported not drinking at all. An overwhelming majority of students (96%) sampled suggested that alcohol is easy or very easy to obtain. Therefore, accessibility would not be an issue in whether or not a student would choose to drink or not to drink.

Students at UND are drinking at similar rates as what other studies have previously reported. As UND is located in a smaller rural setting it is similar to other colleges and universities in smaller rural communities with populations less than 100,000. It may be that students enrolled in universities with a population less than 100,000 are university towns; where the town's economy is primarily supported by its university students. These towns and small cities would most definitely have a smaller town culture (where everyone seems to know everyone) that is different than a metropolitan city.

Tobacco Use

When tobacco use was examined, approximately 76% of UND students had tried a cigarette, cigar or chewing tobacco. However, it was found that approximately 70% of those first users do not currently use tobacco on a daily basis. The data supports that less than 30% of UND students are current users of tobacco. UND students seem to be choosing not to smoke versus students on other college campuses. Although bars and other establishments in Grand Forks continue to offer smoking sections (versus other establishments in other cities), the University of North Dakota (a public facility) does not. It is mandatory that smokers leave the building and smoke outside. It may be said that due to the colder North Dakota winter (that lasts nearly 8 months) only the brave smokers survive.

Drug Use

Drug use at UND was found to be very significant and also to some degree it was found that averages were slightly higher than regional and national averages.

Approximately 27% of students reported having used cannabis sometime within the last three months. This statistic is somewhat consistent with other regional and national studies. Cannabis has been said to be the most widely used illegal drug on U.S. campuses today. This assumption is certainly supported in this study. Perhaps the easiest interpretation as to why it is so widely used is because North Dakota is an agricultural community and Cannabis may be grown with some secrecy and is more widely available than a drug such as heroin or cocaine. Due to a lack of distribution capability (similar to that of a larger city) it could be said that drug users would have a more difficult time trying to find cocaine than marijuana.

However, as compared to other studies, UND students have reported a great deal of other illicit drug use. Approximately 6% of respondents reported using a hallucinogen, 13% reported amphetamine use, 4% reported tranquilizer use, 5.5% reported using a stimulant, 4% reported using an opiate and 5% reported using a synthetic or synthetically created drug. Other regional and national studies have shown that only 5% of students will have reported any type of drug use specified above in a given number of months. These statistics are slightly higher than many of the other studies that have been done. This may be due to the lack of opportunities and recreational activities which people have to choose from. For instance, persons from small towns that are isolated are more likely to engage in different activities simply because they have more time on their hands than those living in the hussle of a larger city.

Almost 88% of the students who were surveyed reported that drugs were either very easy or not difficult at all to obtain. Therefore, availability was not an issue.

Other Variables of Interest

Gender

Using both linear and logistical regression, it was found that only one conclusion could be made when gender was included when explaining substance use. Although the sample size was adequate, only a slight relationship was found when gender was used as a predictor of substance use in one of the five different models. Gender was found to be significant when current tobacco use was examined. Women were more likely than men to have used tobacco on a daily basis.

However, in the other models, no statistical significance could be achieved. This is contrary to what other studies have suggested. Recent studies (Billingham, Post, Gross, 1993; Gustafson, 1993; Robinson, Gloria, Roth, Schuetter 1993) have reported that men generally consume alcohol, tobacco and other drug use more frequently and in greater quantities than women. Therefore, it was surprising to discover that no other statistical significance could be found.

Age Distribution

When age was examined, there was significance in nearly every model.

When age was compared to weekly drinking, it was found that students aged 22 to 24 were the most likely to have consumed alcohol on a weekly basis. There was also statistical significance when students aged 18 and under were reported as the least likely to have used alcohol. Although, statistical significance was found, it

should be mentioned that due to a small sample (only 3 of nearly 700), no meaning should be taken from its relative significance.

Students between the ages of 22 to 24 were also at a higher risk to frequently go out and drink on a monthly basis compared to those of different age groups. A claim may be made that those students a year or two over the age of 21 are the most frequent users. This could signify that students are now entering into the bar scene and, or consuming more alcohol and going out more often. This may be due to a change in parental attachment; in that, as students mature and develop, they will reduce their dependence on their parents. This could also signify a transition from the importance of parents to peer groups and socialized activities (like the bars, lounges, and other facets of interest that could not be entered previously due to age restrictions). Students at that age are also in a transition period where they will be making more independent decisions. University students are more likely to have internalized the norms and values of their parents and are now testing those norms and values, whether they are conventional or unconventional.

Previous research has indicated that students are predominantly drinking at the earlier ages of their university careers, perhaps when they are first introduced into the university atmosphere. It could then be expected that as students become more committed to their university education they will be more likely to abstain from frequent alcohol use. This assumption would typically agree with what Hirschi had expected when he empirically tested his theory. This would also be similar to what other studies have found, that students' drinking patterns vary with their ages and their years in college (Marlatt, Baer, Larimer, 1995).

The same age group of students, those aged 22 to 24 had also reported the most current tobacco use.

Level of Study

A student's level of study factored into only one of the five substance use models. It was found that seniors were the least likely to have tried an illegal drug within the last three months. The data results are similar to those found by Weschler. Weschler and his colleagues (1995) found that age differences in alcohol and drug use rates apply only to older students, in that they will consume less than younger aged students.

This relationship only reaffirms that Hirschi's concept of commitment is very evident in the data. It could be said that students who have taken their career or job as a student seriously will be more likely to strengthen their bonds to society. As can be expected, no student would be as willing to jeopardize their careers to get caught consuming or in possession of an illegal substance, where the punishment would definitely be severe in relation to their studies and their ability to gain employment with a criminal record.

Where a Student Grew Up

When this variable was included in the survey, it was expected that those students from smaller communities and from the region would be the most likely to consume alcohol on a more frequent basis. However, the exact opposite was found when the data was analyzed. It was found that students from larger communities, those with populations above 100,000 were far more likely to consume alcohol on a monthly basis. A possible explanation may be that students who are from these larger

cities or metropolitan areas are used to having a great number of opportunities and interests to indulge in. However, when these students move to a smaller community (such as Grand Forks), they may have fewer choices in what to do on an everyday evening. Therefore, that student may indulge in more unconventional activities which they were not previously accustomed to. With every smaller town, it is expected that there are fewer attractions than a larger metropolitan city.

This also has a strong relationship on a student's involvement in conventional activities. As Hirschi had pointed out, the stronger a student's involvement in conventional activities, the less likely they will turn to more deviant activities such as drug use.

Student Residence

When a student's residence was used as a predictor of drug use, several relationships were found. Students who presently have one parent (or guardian) were found to be far more likely to drink frequently in the last month prior to being surveyed. This is also very consistent with previous research done on both high school and collegiate students. It was also found that students living in one-parent households were far more likely to be at risk of deviant behavior (Rankin and Kern, 1994). I would make the assumption that because there is only one parent or guradian, a student may have been raised in a different way than those with two parents. The student may have been restricted in their day to day life, or perhaps the exact opposite, given more latitude than those reared by two parents. Students living with one parent may have also been affected either by a death in the immediate family or

loss of another parental figure that could result in drowning one's problems and sorrows because of fear, anxiety or stress.

Students who lived alone or with friends or roommates were found to be the least likely to have used tobacco on a daily basis. It was expected that students who live with their parent(s) (many of whom may disagree with smoking) would be more likely to use smoke on a daily basis, but this was not the case. As discussed previously, if the greater majority of students on campus (as surveyed) are not smoking on a daily basis then living with someone who is a smoker is uncommon.

Greek Houses

Although Greek houses are conventional in their practices on university campuses like expanding university activities, they have a tendency to be involved in heavy drinking and other university related problems. When Greek houses were included as a control variable a great deal of significance was found between their affiliates and the frequency of drug use.

The University of North Dakota campus (like many other campuses) is a dry campus. Despite those policies, it was found that those affiliated with Greek houses were more likely to consume alcohol and consume it on a frequent basis. There was a positive relationship found between those affiliated with a Greek house and weekly and monthly drinking. This evidence further suggests pledges or members of sororities and fraternities report greater rates of alcohol consumption and drinking-related problems than non-Greeks (Kidman and Stomach, 1984; Tempe, 1990; Baer, Kivlahan, Marlatt, 1995). The data further suggests that a positive relationship can be made between those affiliated with a Greek house and daily tobacco use.

Those students who are members of fraternities or sororities were also far more likely to have used an illegal drug in their lifetime and also to have used an illegal drug within the previous three months of being surveyed.

According to the data, those affiliated with Greek houses have reported substantial drug use, both legal and illegal. Fraternities and sororities may be considered their own subculture. Despite their conventional ties to the university, they also have a culture about them that is unconventional which may include beer bashes and parties that distract students from their university studies, rather than contributing to them.

Income

Income was found to be a significant indicator of substance use at the University of North Dakota. After examining the data, analysis has shown that students who have approximately $201 to $300 of spending money each week were the most likely to consume alcohol on a monthly basis. It was also found that students with approximately $201 to $300 of spending money each week were the most likely to be current and, or daily users of tobacco. Students spending between $201-$300 each week were the most likely to have used a drug within the last three months. It is important to recognize that feeding a drinking, smoking or drug habit can and will be expensive.

It should also be recognized that those students who earn and can spend over $301 a week were less likely to use alcohol, tobacco or drugs on a recreational basis. Therefore, there seems to be a break point between those that use and those that do not. Perhaps, those students who earn more have more to lose if they are "hung over"

or "high" the next day. It could be that the negative consequences of substance use could be a factor in their decision to use.

Leisure Time

When leisure time was included as a variable, it was also found that those students who go out more than 6 or 7 times per week were more likely to consume alcohol. This would suggest that students are frequently going to establishments that are serving alcoholic beverages. An assumption can be made that the more a student frequents bars, the more likely they will drink on a more unrestricted basis, perhaps binge drinking on different occasions.

It seems that students who go out approximately 4 to 5 times per week were the most likely to have engaged in current drug use (within the last three months of being surveyed). Perhaps those students who go out more often (6 to 7 days/ week) are less likely to use drugs than their counterparts because they will not have time to study or even do homework. The recovery time for drug use is longer in duration than alcohol and going out every night of the week is simply difficult.

Drug Education

The data supports the hypothesis that students who have taken a drug education class are less likely to have used alcohol. In the model of monthly drinking and current tobacco use, it was found that students who have not taken a drug education class were more likely to have used these substances on a more frequent basis. It should be expected that if students are taught the consequences of substance use they may refrain from using as frequently as those who do not have that information. Therefore, students who have taken these drug education classes have

more information to base their decision and choices on than a student who has not taken a class.

An assumption can also be made that as students are more educated or committed to their education (having taken a drug education class), the less likely they will decide to enter into activities that could result in sanctions (for instance, drinking and driving). This would suggest that Hirschi's concept of commitment would have some moderate correlation with drug use.

Does the Theory work?

The different models of substance use (weekly and monthly drinking, tobacco use, lifetime and current drug use) were all used as individual dependent variables within the larger whole of substance use. These variables increased the reliability of the study and after careful analysis it can be said that Hirschi's social control theory's concepts provided reliable indicators in predicting collegiate drug use.

Although each drug has different moral, legal and social implications, social control theory was found to be a reliable predictor of drug use. Krohn and Massey (1980) also found similar results after testing adolescent delinquency.

When Hirschi's concepts of attachment, commitment, involvement and belief were used as predictors of alcohol use (weekly and monthly drinking), the theory was also validated. As a student's bond to society decreases, a student was more likely to increase their alcohol consumption. It was also found that three of the four social control concepts (commitment, involvement and belief) were reliable predictors of current tobacco use.

However, only commitment and belief were found to be the most significant when control theory was used as a predictive measure of current and lifetime drug use. Therefore, attachment and involvement were found to be insignificant. Even though each concept had decreased as drug use increased, it was not to a statistically significant level. As Hirschi had explained in his empirical testing, involvement was supportive of the theory but in some instances it was found to be statistically insignificant. After some further testing, Hirschi found that attachment was directly associated with delinquent friends, a finding that he did not anticipate (Akers, 2000). Both alcohol and drug consumption seemed to be weighed heavily on social consumption and peers. As Hirschi explained after reviewing his theory, attachment to peers leads to conformity only when peers are themselves conventional. Therefore, if students are more attached to their peers and their peers are involved in deviant behavior, they are more likely to be deviant themselves (Linden and Hackler, 1973; Conger, 1976; Elliott et al., 1985; Junger-Tas, 1992). Therefore, it is possible that this study has found similar results to that of Hirschi's empirical testing.

It was suggested earlier in this thesis that as students mature through their life, they will be more independent and rely less on their parents and more on their peers and life partners. This may explain why attachment was not found to have such high statistical significance when predicting drug use.

The data of the model can be used to conclude that social control theory can predict substance use. However, peer influences are very pertinant to the discussion. Akers and Cochran (1985) found similar results when they measured adolescent marijuana use, as did Lasley (1988) when he found that forms of adult crime were

related to measures of the social bonds to society. The empirical data of other research done at the different deviance levels have found that the magnitude of relationships between social bonding and deviant behavior has ranged form moderate to low (Akers, 2000). High levels of significance and explained variance are seldom found. However, the theory is favorable in that it does have predictive power.

Students enrolled in college are, as explained previously, in a transitional stage of their lives. After years of maturation and dependence on their parent(s) or guardian(s) there is an obvious surge of independence and experimentation. After years of being told what was right and wrong and having constructs so concrete, students begin to recognize that society is not frigid but instead can be flexible. For this reason, many of their parent(s) norms and values that they have internalized are likely to be tested. As those norms and values are tested, the opportunity for entering into unconventional activities increases. However, if a student can keep those instilled norms and values intact (and those norms and values are conventional), their bond to society will remain strong. In accordance to the theory, a student will be less likely to be involved in deviant acts.

Conclusion

This study of collegiate drug use demonstrated that the levels of alcohol and drug use support previous findings on a regional and national level. This study also provided statistical analysis and a theoretical orientation to drug use. The survey itself was developed as a new instrument to examine the theoretical framework of Travis Hirschi (and his social control theory) and collegiate drug use and to examine some of the behaviors of college students. It may be used as an educational tool for others who

are interested in prevalence data and theory testing. This study will have greatly extended the substance use research done at UND. The model of Hirschi's control theory has been found to have significant power (with some limitations) to explain a collegiate student's alcohol, tobacco and drug use.

APPENDIX A

SURVEY QUESTIONNAIRE

Survey Questionnaire

This survey is confidential and anonymous. You may leave at any time, or disregard any question(s) you feel uncomfortable answering. Please do not mark the questionnaire. Answer the questions on the IBM sheet provided. Thank you.

Part A – Demographic Information

1. Are you....?
1 male
2 female

2. Are you ....?
1 single
2 married

3. How old are you?
1 under 18
2 18-19
3 20-21
4 22-24
5 25 and over

4. In what level of study are you in?
1 Freshman
2 Sophomore
3 Junior
4 Senior
5 Graduate student

5. What is your ethnic background?
1 White
2 American Indian
3 Black
4 Hispanic
5 Other

Part B - Family Background

6. Where did you grow up?
1 on a farm or rural town (population less than 10,000)
2 in a rural town between 10,000 and 50,000 people
3 in a city between 50,000 and 100,000 people
4 in a larger city between 100,000 and 500,000 people
5 in a large city over 500,000 people

7. Which of the people do you live with currently?
1 I live alone
2 two parents/ guardians
3 one parent/ guardian
4 roommate(s)/ friends
5 with spouse
6 single parent

8. How far away do you live from your parents or guardians?
1 I live with one/both of my parents /guardians
2 I live within a close proximity (within 20 miles)
3 I live between 20 and 140 miles away (approx. ½ - 2 hours)
4 I live between 140 and 420 miles away (approx. 2 ½ - 6 hours)
5 I live further than 420 miles away (over 6 hours)

9. How many times would you say (on average) you eat dinner with any of your immediate family (parents, brothers, sisters, grandparents, spouses) in a week?
1 seven days/ wk
2 six days/ wk.
3 four to five days/ wk.
4 once, twice, three days/ wk.
5 never do

10. Are your parents involved (know what you are up to on a weekly basis) in your schoolwork?
1 very involved
2 involved
3 rarely involved
4 not involved

11. Do you celebrate birthdays, special occasions, go to church, watch TV, or go shopping with your parents often?
1 as much as possible
2 not often
3 when I can
4 not at all

12. My parents/ guardians did a ..... raising me.
1 very good job
2 good job
3 not a bad job
4 bad job

13. Is your family (one member or more) important to you?
1 yes
2 no

14. Have you ever lived in a fraternity or sorority?
1 yes
2 no

15. Do you presently live in a fraternity or sorority?
1 yes
2 no

Part C - School Performance

16. How do you rate yourself in your schoolwork?
1 below average
2 average
3 above average

17. How intelligent do you feel you are compared to others?
1 below average
2 average
3 above average

18. What are your grades like on average?
1 A's
2 B's
3 C's
4 D's
5 F's

19. Do you participate in any extracurricular events (intramurals, athletics, theatre, etc.) or any volunteer work in or out of school?
1 very involved
2 involved
3 rarely involved
4 not involved

20. During the last five days, how many whole school days have you cut (not due to illness)?
1 none
2 one
3 two
4 three
5 four

21. During the last five days, how many classes have you cut (not due to illness)?
1 none
2 one
3 two
4 three
5 four or more

Part D – Work Performance

22. Do you have a paying job outside of going to school?
1 yes
2 no

23. On average, how many hours a week do you work?
1 I don't work
2 1 - 10 hours
3 11-20 hours
4 21-30 hours
5 31 hours or more

24. During a typical week, how much spending money do you get from your job, parents, allowance, student loans, the government or other people?
1 none
2 less than $100
3 between $101-$200
4 between $201-$300
5 $301 and above

25. During the average week, on how many evenings do you go out for fun?
1 six to seven days
2 four to five days
3 two to three days
4 one day a week
5 I rarely go out

26. Do you think that alcohol and/or drug education is important to you?
1 very important
2 important
3 somewhat important
4 not important

27. Have you had any alcohol and/or drug education classes?
1 yes
2 no

Part E – Alcohol Use

28. When was the first time you ever had a drink (beer, liquor, wine coolers, and wine)?
1 13 or younger
2 between 14 and 17
3 between 18 and 21
4 over the age of 21
5 never have drank

29. Have you ever been drunk before?
1 yes
2 no

30. How many times have you had a drink (one drink or more) in a week?
1 six to seven days a week
2 four to five days/ wk.
3 once, twice, three days/ wk.
4 less than once/ wk.
5 I don't drink

31. How many drinks have you had in the last MONTH?
1 none
2 1-10 drinks
3 11- 20 drinks
4 21-30 drinks
5 31 or more drinks

32. Would you find it difficult to get alcohol?
1 very difficult
2 difficult
3 not difficult at all
4 very easy

Part F – Tobacco Use

33. When was the first time you ever had smoked or chewed tobacco?
113 or younger
2 between 14 and 17
3 between 18 and 21
4 over the age of 21
5 never have smoked/ chewed

34. How many times would you say you smoke on an average day?
1 I do not smoke
2 1 - 10 times
3 11-20 times
4 21-30 times
5 31 or more times

Part G - Illicit Drug Use **does not include prescription medication

35. When was the first time you ever used illicit drugs?
1 13 or younger
2 between 14 and 17
3 between 18 and 21
4 over the age of 21
5 never have tried drugs

36. On how many occasions (if any) have you used Cannabis (Marijuana, Hashish, Hash Oil) in the last 3 MONTHS?
1 none
2 1 - 2 times
3 3 – 9 times
4 10 – 19 times
5 20 or more times

37. On how many occasions (if any) have you used Hallucinogens (mind-expanding drugs) like LSD, PCP or Magic mushrooms in the last 3 MONTHS?
1 none
2 1 - 2 times
3 3 - 9 times
4 10 – 19 times
5 20 or more times

38. On how many occasions (if any) have you used Amphetamines like diet pills, speed, or uppers in the last 3 MONTHS?
1 none
2 1 - 2 times
3 3 - 9 times
4 10 – 19 times
5 20 or more times

39. On how many occasions (if any) have you used a Tranquilizer like Valium, Librium, or Xanax in the last 3 MONTHS?
1 none
2 1 - 2 times
3 3 - 9 times
4 10 – 19 times
5 20 or more times

40. On how many occasions (if any) have you used a Stimulant like Ritalin, Cocaine or Methedrine in the last 3 MONTHS?
1 none
2 1 - 2 times
3 3 - 9 times
4 10 – 19 times
5 20 or more times

41. On how many occasions (if any) have you used drugs like Opium, Morphine, Codeine (t-threes), Heroin, Methadone (dollies) or Demerol in the last 3 MONTHS?
1 none
2 1 - 2 times
3 3 - 9 times
4 10 – 19 times
5 20 or more times

42. On how many occasions (if any) have you used synthetic or club drugs like AMF, China White, MPPP, or other designer drugs like Euphoria in the last 3 MONTHS?
1 none
2 1 - 2 times
3 3 - 9 times
4 10 – 19 times
5 20 or more times

43. Would you find it easy to get illicit drugs?
1 very difficult
2 difficult
3 not difficult at all
4 very easy

44. Have you ever been convicted of a misdemeanor (like a traffic ticket) and, or a felony?
1 yes
2 no

Thank you for completing this survey

APPENDIX B

CLASS PARTICIPATION

Classes that were asked to participate Class Name	Class Number	Student participated
Introduction to Policing	CJ 210	53
Introduction to Sociology	SOC 110	216
Diversity	SOC 250	38
Introduction to Philosophy	PHIL 101	51
Drugs and Society	SOC 355	76
Criminological Theory	CJ 330	27
Women, Crime and CJ	CJ 399	12
Sociology of Sport	SOC 309	47
Law for CJ	CJ 353	49
Sociological Methods (both sections)	SOC 323	11
Population	SOC 437	9
Deviance	SOC 450	11
Social Psychology	SOC 361	46
Philosophy of Human Nature	PHIL 408	10
Corrections	CJ 351	15
Advanced Research Design	SOC 520	6
Individual Graduate Respondents	SOC 511 (+)	23
Total	----------	699

APPENDIX C

FOCUS GROUP QUESTIONS

Questions Asked in Focus Groups

Will the respondent be worried about anonymity?
Will the respondent be worried about confidentiality?

Is this question necessary?
Are there too many questions?
Is this survey too long?
Will the question(s) be useful?
Should I use several questions to adequately cover the individual variables?
Are each of my variables operationalized?
Will the respondents be able to answer the questions?
Do the questions need to be more specific?
Should I use acronyms?
Is the question biased in any way?
Is the question loaded? Does it have 2 questions within one?
Is the question understandable?
Can the question be misread?
Is the wording difficult to understand?
Are there any assumptions that a question may be based upon?
What alternatives would you have to change the question?
Is the wording objectionable?
Are the questions emotionally or mentally objectionable?
Is the question too direct?
Is the question not direct enough?
Do you like to closed-ended format? Or should the questions be open-ended?
Should I use Likert-scale type response sets?
What do you think about the order of the questions?

APPENDIX D

DATA SET CODEBOOK

Name
Position

GENDER
1

Value	Label
0	female
1	male

STATUS
2

Value	Label
0	married
1	single

AGEGRP
3

Value	Label
1	under 18
2	18-19
3	20-21
4	22-24
5	over 25

AGE1
4

Value	Label
0	other
1	under 18

AGE2
5

Value	Label
0	other
1	18-19

AGE3
6

Value	Label
0	other
1	20-21

AGE4

7

Value	Label
0	other
1	22-24

AGE5

8

Value	Label
0	other
1	over 25

STUDY

9

Value	Label
1	freshman
2	sophomore
3	junior
4	senior
5	graduate student

FRESHMAN

10

Value	Label
0	else
1	freshman

SOPHOM

11

Value	Label
0	else
1	sophomores

JUNIOR

12

Value	Label
0	else
1	juniors

SENIOR

13

Value	Label
0	else
1	senior

ETHNIC

14

Value	Label
1	White
2	American Indian
3	Black
4	Hispanic
5	other

```
WHITE
     15
          Value     Label

              0     non-White
              1     White
SIZETOWN
     16
          Value     Label

              1     less 10,000 pop.
              2     between 10,000 and 50,000 pop.
              3     between 50,000 and 100,000 pop.
              4     between 100,000 and 500,000 pop.
              5     over 500,000 pop.
SIZE1
     17
          Value     Label

              0     else
              1     pop. less than 10,000
SIZE2
     18
          Value     Label

              0     else
              1     between 10,000 and 50,000
SIZE3
     19
          Value     Label

              0     else
              1     between 50,000 and 100,000
SIZE4
     20
          Value     Label

              0     else
              1     between 100,000 and 500,000
SIZE5
     21
          Value     Label

              0     else
              1     pop. over 500,000
```

LIVEWITH
22

Value	Label
1	I live alone
2	2 parents/guardians
3	1 parent/guardian
4	roommate(s)/ friend(s)
5	with spouse
6	single parent

FRIEND
23

Value	Label
0	other
1	live with friend

ALONE
24

Value	Label
0	other
1	live alone

PARENT
25

Value	Label
0	other
1	live with one parent

PARENTS
26

Value	Label
0	other
1	live with 2 parents

FARAWAY
27

Value	Label
1	further 420 mi.
2	live within 140-420 mi.
3	live within 20-140 mi.
4	live within 20 mi.
5	live with parents

DINNER
28

Value	Label
1	never do
2	1-3 days/wk
3	4-5 days/wk
4	6 days/wk
5	7 days/wk

PINVSTUD
29

Value	Label
1	not involved
2	rarely involved
3	involved
4	very involved

CELEBRAT
30

Value	Label
1	not at all
2	when I can
3	not often
4	as much as possible

RAISED
31

Value	Label
1	bad job
2	not a bad job
3	good job
4	very good job

PIMPORT
32

Value	Label
0	no
1	yes

GREEKEV
33

Value	Label
0	no
1	yes

GREEKPRE
34

Value	Label
0	no
1	yes

RATESCH
35

Value	Label
1	below average
2	average
3	above average

COMPOTH
36

Value	Label
1	below average
2	average
3	above average

GRADES
37

Value	Label
1	F
2	D
3	C
4	B
5	A

EXTRACUR
38

Value	Label
1	not involved at all
2	rarely involved
3	involved
4	very involved

MISSDAYS
39

Value	Label
1	four
2	three
3	two
4	one
5	none

MISSCLAS
40

Value	Label
1	four or more
2	three
3	two
4	one
5	none

JOB
41

Value	Label
0	no
1	yes

WORKHRS
42

Value	Label
1	I don't work
2	1-10 hours
3	11-20 hours
4	21-30 hours
5	31 hours or more

CASHWK
43

Value	Label
1	none
2	less than $100
3	$101-200
4	$201-300
5	$301 and above

INCOME1
44

Value	Label
0	else
1	$100 or less

INCOME2
45

Value	Label
0	else
1	between $101 and $200

INCOME3
46

Value	Label
0	else
1	between $201 and $300

INCOME4
47

Value	Label
0	else
1	over $301

GOOUTWK
48

Value	Label
1	6-7days/wk
2	4-5 days/wk
3	2-3 days/wk
4	one day/wk
5	I rarely go out

GOOUT1
49

Value	Label
0	else
1	go out 6-7 days per week

GOOUT2
50

Value	Label
0	else
1	go out 4-5 times per week

GOOUT3
51

Value	Label
0	else
1	go out 2-3 times per week

GOOUT4
52

Value	Label
0	else
1	go out once a week

GOOUT5
53

Value	Label
0	else
1	goes out rarely

DEDUCIM
54

Value	Label
1	not important at all
2	somewhat important
3	important
4	very important

ANYDEDUC
55

Value	Label
0	no
1	yes

FIRSTALC
56

Value	Label
1	age 13 or younger
2	14-17
3	18-21
4	over the age of 21
5	never have drank

WKDRINK
57

Value	Label
1	I don't drink
2	once a week
3	2-3 days/ wk
4	4-5 days/wk
5	6-7 days/wk

MTHDRINK
58

Value	Label
1	none
2	1-10 drinks
3	11-20 drinks
4	21-30 drinks
5	over 31 drinks

ALCAVAIL
59

Value	Label
1	very difficult
2	difficult
3	not difficult at all
4	very easy

FIRSTTOB
60

Value	Label
1	age 13 or younger
2	14-17
3	18-21
4	over the age of 21
5	I've never tried tobacco

DAYSSMK
61

Value	Label
1	I do not smoke
2	1-10 times/day
3	11-20 times/day
4	21-30 times/day
5	31 or more times/day

FIRSDRUG
62

Value	Label
1	age 13 or younger
2	14-17
3	18-21
4	over the age of 21
5	I've never tried drugs

DRLIFE
63

Value	Label
0	never tried a drug
1	tried a drug

DRUG3MTH
64

Value	Label
0	haven't used a drug in last 3 months
1	have used a drug in the last 3 months

DRUGADD
65

Value	Label
0	haven't used in last 3 months (1-7)
1	have used in last 3 months (8-35)

CANN3MTH
66

Value	Label
1	none
2	1-2 times/3mths
3	3-9 times/3mths
4	10-19 times/3mths
5	20 or more times/3mths

HALL3MTH
67

Value	Label
1	none
2	1-2 times/3mths
3	3-9 times/3mths
4	10-19 times/3mths
5	20 or more times/3mths

AMP3MTH
68

Value	Label
1	none
2	1-2 times/3mths
3	3-9 times/3mths
4	10-19 times/3mths
5	20 or more times/3mths

TRN3MTH
69

Value	Label
1	none
2	1-2 times/3mths
3	3-9 times/3mths
4	10-19 times/3mths
5	20 or more times/3mths

STM3MTH
70

Value	Label
1	none
2	1-2 times/3mths
3	3-9 times/3mths
4	10-19 times/3mths
5	20 or more times/3mths

OPI3MTH
71

Value	Label
1	none
2	1-2 times/3mths
3	3-9 times/3mths
4	10-19 times/3mths
5	20 or more times/3mths

SYN3MTH
72

Value	Label
1	none
2	1-2 times/3mths
3	3-9 times/3mths
4	10-19 times/3mths
5	20 or more times/3mths

DRAVAIL
73

Value	Label
1	very difficult
2	difficult
3	not difficult at all
4	very easy

CONVICT
74

Value	Label
0	no
1	yes

ATTACH2
75

Value	Label
4	low attachment
17	high attachment

COMMIT2
76

Value	Label
5	low commitment
24	high commitment

INVOLVE2
77

Value	Label
2	low involvement
9	high involvement

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